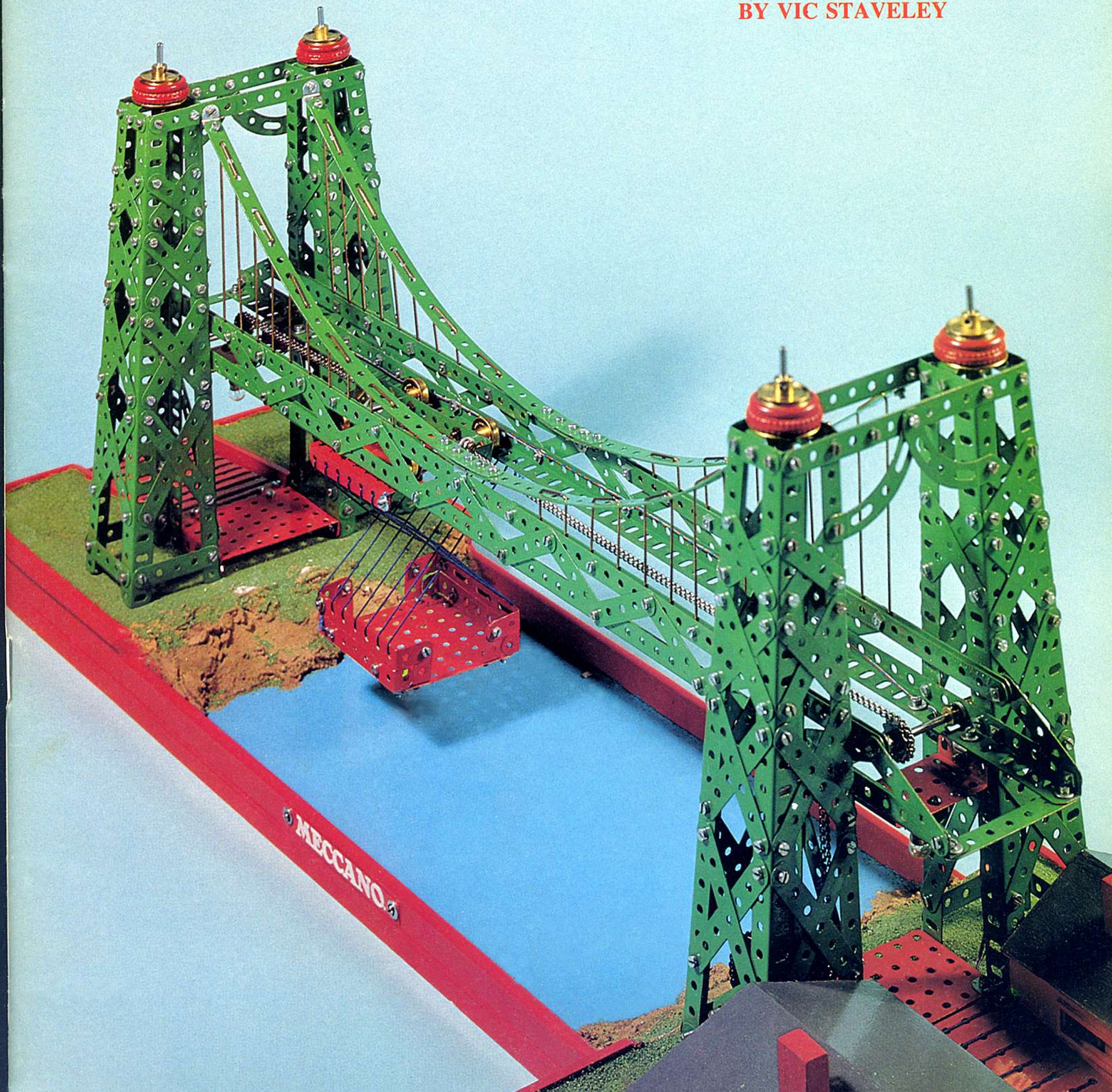
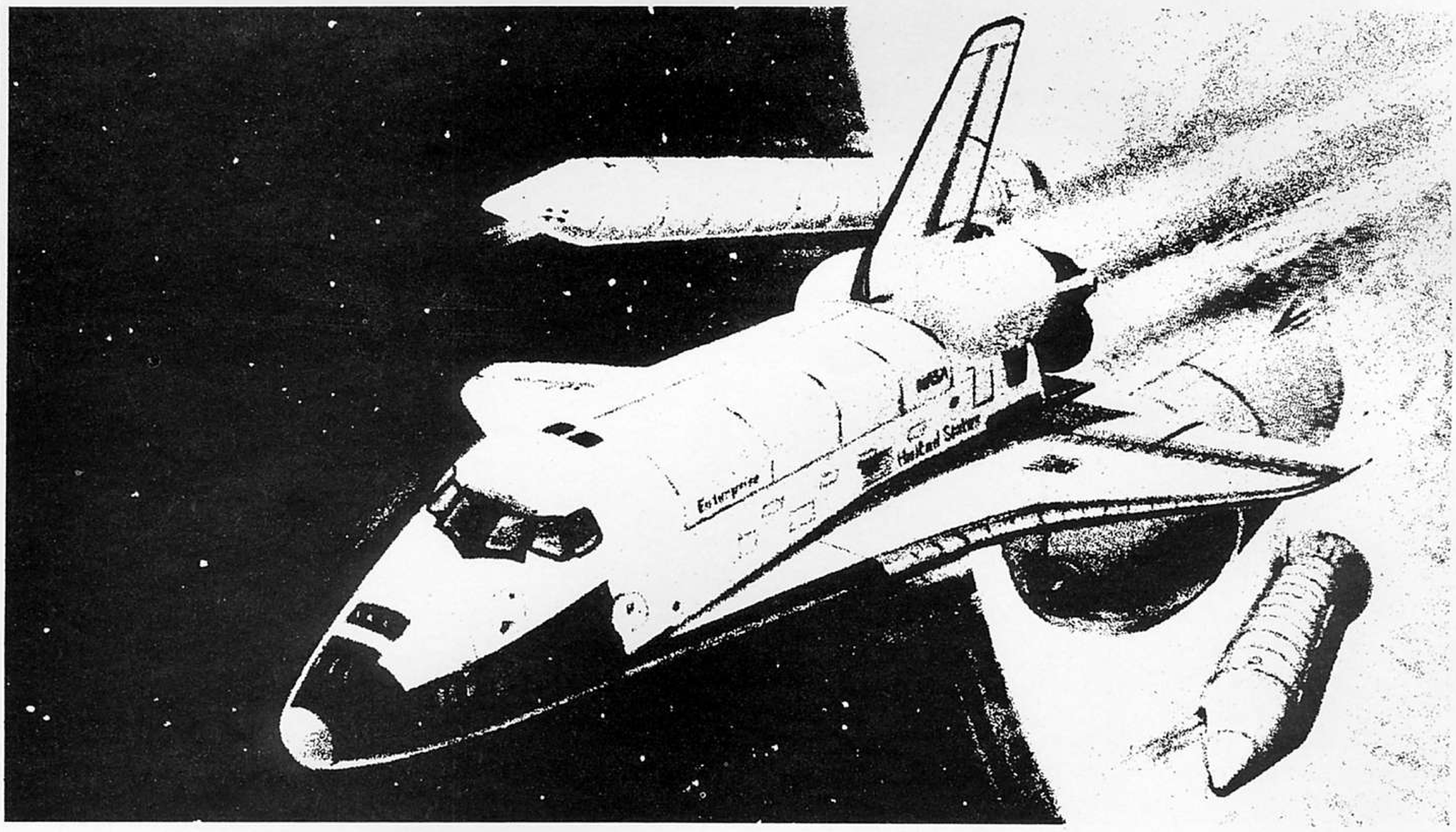
MECCANO MAGAZINE

VOL. 64 No. 2
1979 APRIL £1

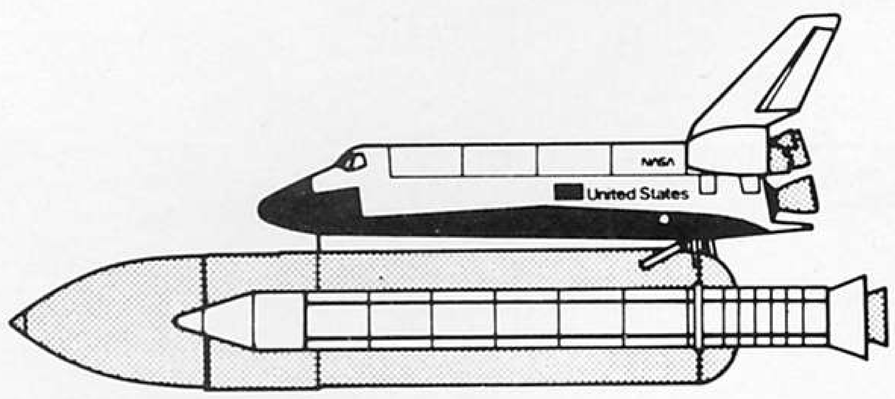
TRANSPORTER BRIDGE
BY VIC STAVELEY

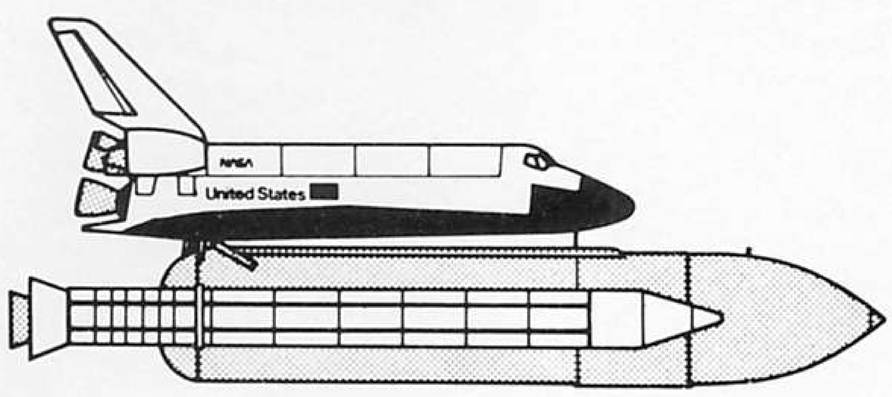


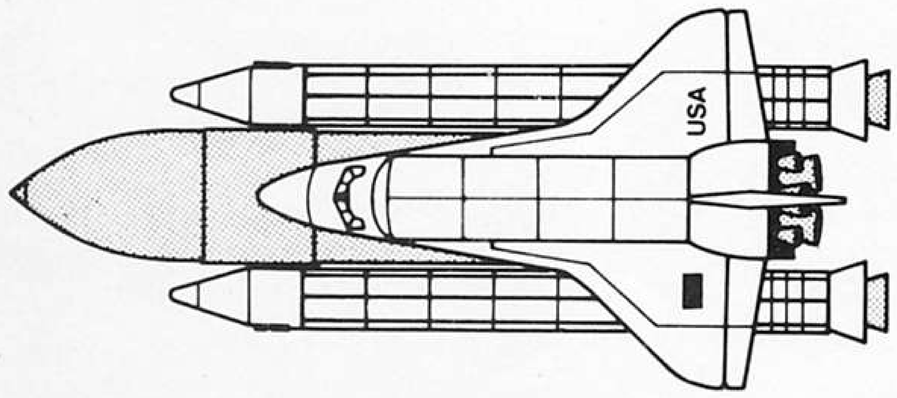
NEW FROM AIRFIX



THE 8.15 OF THE 1980's







For years the idea of spacecraft plying regularly between earth and space has been pure science fiction.

But now it's becoming science fact. In the shape of the Space Shuttle Transportation System being developed by NASA.

Its first manned space mission is planned for 1979, prior to the first scheduled operational mission in 1980.

By the mid 1980's, this re-usable space vehicle will be operating as a commuter ferry, shuttling men and materials with the same familiar regularity as the 8.15.

The Shuttle is now available in a 1/144 scale Airfix kit, with over 90 parts. The kit includes two strap on booster rockets, the huge fuel tank and a Space Lab payload.

Its detailed modelling is an eloquent demonstration of the close co-operation kindly provided by Rockwell Space Division, the Space Shuttle's designers.

Technical Details

Lift-Off Thrust:	6.61 million lb
Re-entry Speed:	17,450 mph
Re-entry Height:	76 miles
Touch-Down Speed:	215 mph

SPACE SHUTTLE
1/144 Scale

AIRFIX

APRIL 1979

MECCANO MAGAZINE

Vol. 64, No. 2 April 1979

ON THE COVER: A superb Transporter Bridge by Vic Staveley of Blackpool. Although fully detailed and operational, the model is surprisingly compact and proves that advanced constructions of this type need not be excessively proportioned in order to achieve a realistic effect. Detailed photographs of this model, taken by Norman Mason, appear on pages 21 and 22 inside this issue.

EDITOR
MICHAEL J. WALKER

THE Editorial of the January Meccano Magazine constituted something of landmark in the history of the publication, in that it was the final one to be penned by our Editor of recent years, Chris Jelley.

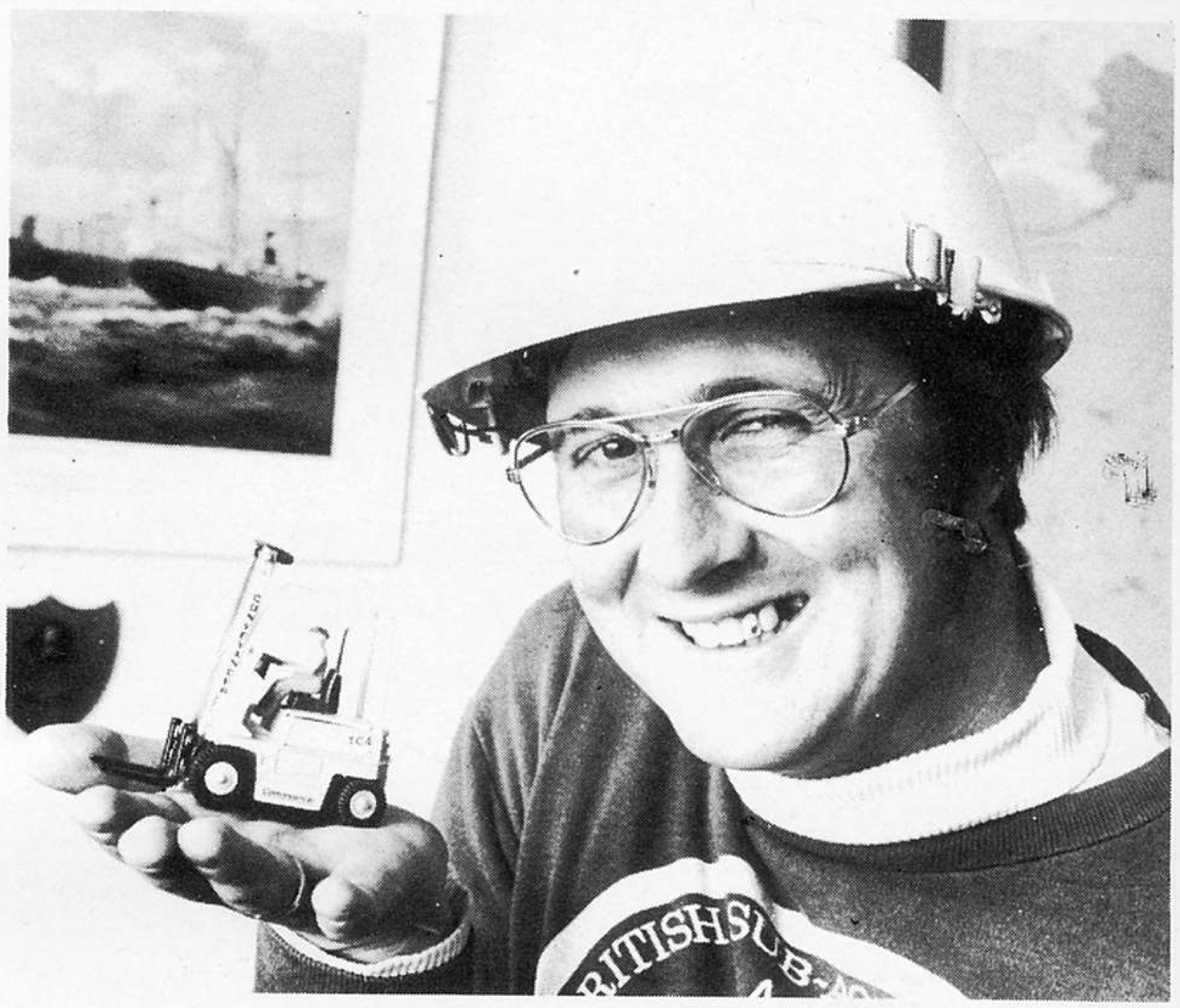
As it was explained at the time, Chris resigned from Meccano Ltd., for reasons of advancement in his career, and I'm certain that every reader will join me in wishing him every success and happiness in his future position. Having worked on the 'M.M.' for sixteen years or so, Chris enjoyed a special regard from the many thousands of Meccano enthusiasts who benefited from his tireless efforts to produce a magazine of superb quality.

The biggest question mark hanging over Chris' departure was, 'will the Meccano Magazine continue to be published?' The 'M.M.' has weathered so many storms over recent years, as regular subscribers will be aware. However, in this case Meccano took measures well in advance to ensure the continuance of the Magazine.

Firstly, funds were made available to support the 'M.M.' until WE can get the circulation up to an economical level. Secondly, Chris Jelley asked me to take over as Editor—a function I was delighted to accept; thirdly, a backup service, with the help of an Editorial Assistant, was set up by the Marketing Department of Meccano Ltd.

As a Meccano enthusiast myself, I can well imagine the vital importance of the continuing publication of the 'M.M.', serving as it does the function of 'official organ' of the entire Meccano fraternity. As Editor I can state with confidence that the future of the Meccano Magazine is assured, indeed, in my view, it has an ever-increasing part to play in the life of the Meccano hobby as a whole.

One of my most difficult tasks as Editor will be to maintain the extremely high standards of my predecessor. To assist me to do this, contributions from all sources are of vital importance. A lively, interesting Meccano Magazine with a well-balanced layout of articles is only possible whilst a healthy supply of material from the readers themselves is available. Your articles, photographs, letters and advertisements are the life-blood of the Meccano Magazine; there is no better way one can ensure a solid base for the future publication of our 'M.M.' than by supporting it in this manner!



IT'S in his hands ... the skill that made Mike Bond the best in Britain. The 33 year old driver employed by the Mersey Docks and Harbour Company beat all others in a National Dock Labour Board Competition to find the best fork lift truck driver in Britain's ports. The ability he shows every day on Liverpool docks put him 482 points ahead of his nearest rival in the annual championships at the N.D.L.B. Training Centre in London. And in addition to the gleaming trophies he collected Mike was presented with a commemorative plaque and a Dinky Toy fork lift truck by Dock Company Operations Director Sir Peter Austin. Mike, who lives in Crosender Road, Crosby, qualified for the top contest when he won the Merseyside regional competition last June. 'I drive a car, I drive a boat and I tow a caravan. I'm always behind the wheel', said Mike. 'But you have to be particularly conscientious driving a fork lift truck. I do the job because I enjoy it, rather than just for a living'.

As I take over the Editor's chair, my thoughts wander to the responsibilities I assume for the continuance of a great tradition, and I am acutely aware of the immense importance of the Meccano Magazine to the users of Meccano worldwide. Certainly many storms have had to be weathered in the recent past, but it is the nature of storms to eventually pass over, allowing sunny days to return. With the new Editorial Team's enthusiasm and your support as outlined above, the 'sunny days' will indeed return for the Meccano Magazine!

CONTENTS

44 Leyland National Bus—Part 2
47 Southern Railway Schools Class 4-4-0
49 North West Frontier
50 History of Aviation
52 Midlands Outlook
53 Taylor's Teknikit
54 Darlington Scene
56 New Zealand Meccanomen's Convention
58 Among the Model Builders
61 Miniature Super Model!
63 In View
64 Little Joe and ...
65 Tricky Track
66 Club Roundup
68 Postbag
70 Two from Four
75 Dinky News
77 Stratford Supermodels

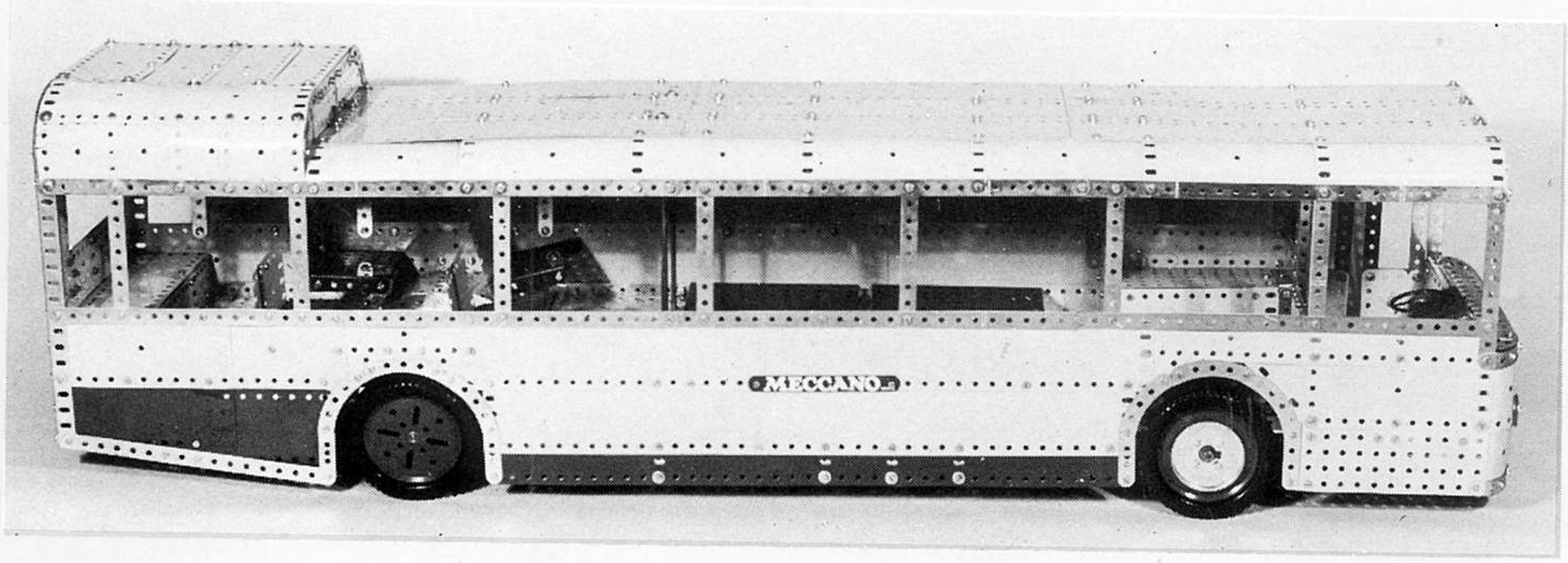
MECCANO MAGAZINE is published quarterly in January, April, July and October by Meccano Limited, P.O. Box 4, Binns Rd., Liverpool L13 1DA. Copyright exists on all editorial matter in this magazine and no part of it may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, without the prior permission of the publishers. SUBSCRIPTIONS are available from the publishers at the basic surface mail rate, throughout Britain and the World, of £4.00. Air Mail rates for specific Countries are available upon application.

MECCANO MAGAZINE BINNS ROAD, LIVERPOOL L13 1DA, ENGLAND

Printed by
Mersey Mirror Ltd.,
12 Prescot Road,
Liverpool L7 0LQ
England.

LEYLAND NATIONAL SINGLE-DECK BUS

Part 2 of a new No.10 model designed and built by ROGER WALLIS



BODYWORK

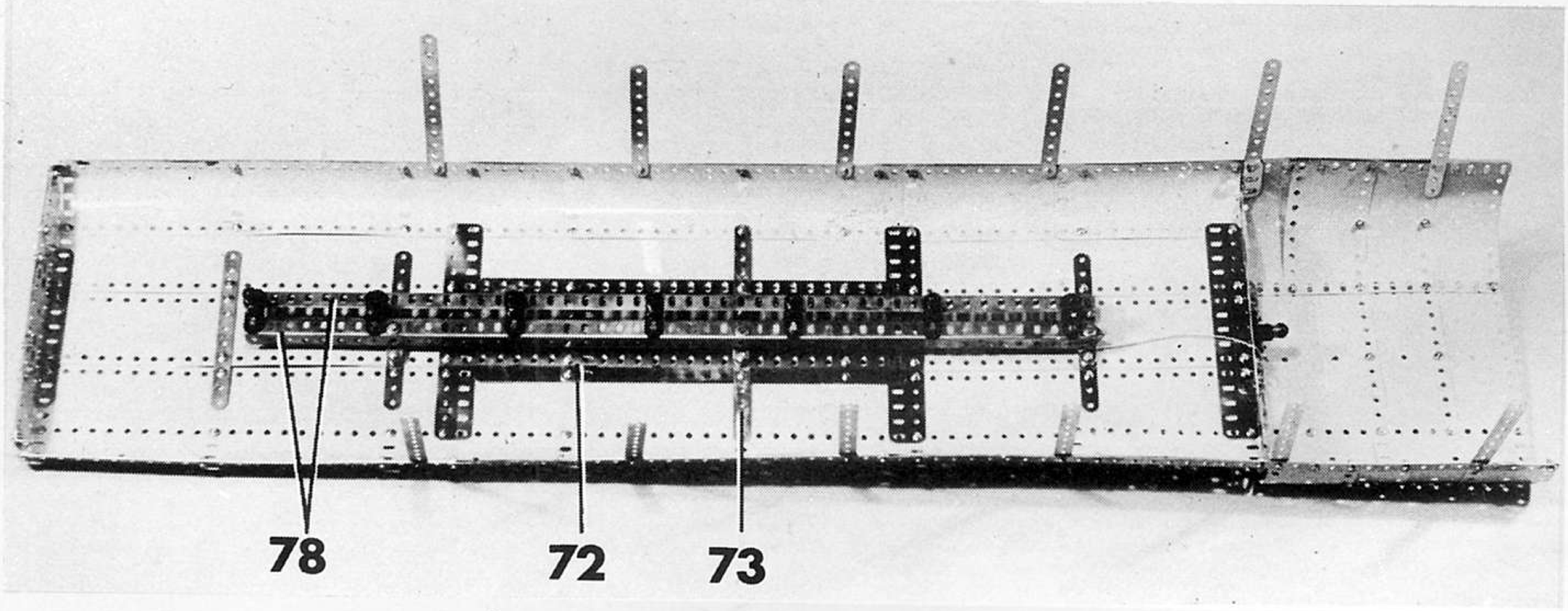
From the rear door pillar backwards, each side of the bodywork is similarly built up from a 5½" x 1½" Flexible Plate, a 2½" x 2½" Triangular Flexible Plate and a 2½" x 1½" Triangular Flexible Plate around the front wheel arch, with Strip Plates and a lower banding of 1½" wide Flexible Plates of various lengths, these overlayed by Plastic Plates to give a colour variation between the two wheel arches. A 5½" x 1½" Flexible Plate and two 2½" x 1½" Triangular Flexible Plates edge the top of the rear wheel arch, while the rear section of the side is enclosed by a rectangle formed by three 5½" x 2½" Flexible Plates and one half of a Hinged Flat Plate 44, all appropriately overlapped. The two lower Plates are overlaid by a 4½" x 2½" Plastic Plate 45 and a 5½" x 2½" Plastic Plate 46, Plate 45 extending one hole beneath Plate 46. The lower edges of the Plates are edged by a 5½" and a 3½" Strip angled as shown to give the correct outline. The rear wheel arch is edged by two 2" Strips and three 2½" Curved Strips, the three latter Strips joined by Fishplates.

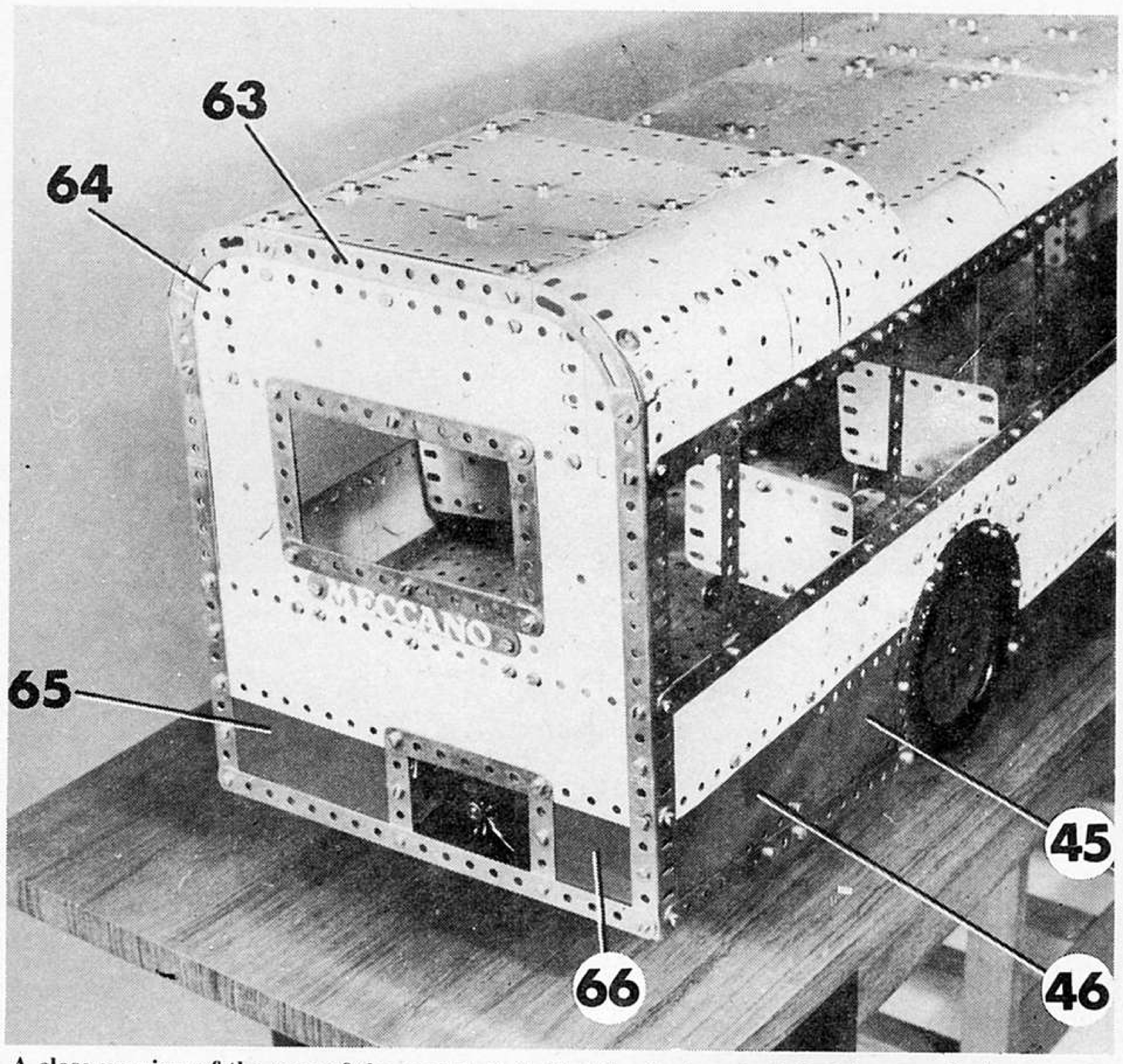
The front wheel arch is similarly edged, with the exception of the vertical front component. At the left-hand side of the model this is a 2½" Flat Girder and, at the right-hand side, a 2½" Strip. The upper edges of the side plates are overlaid along their full length by three 12½" Strips with a 2½" Strip at the rear.

The sides this far built can now be attached to the chassis by bolting them to the 7½" Angle Girder edging the rear Flat Plates of the floor and to the 18½" Angle Girders bolted to the outer edges of the central Flat Plates of the floor. Once this has been done, the lower edge of each side is overlaid, on the inside, by a 19½" compound flat girder 47 built up from a 12½" and a 9½" Flat Girder. This Flat Girder rides over the lower edge of the vertical flange of the 18½" Angle Girder, although it is not actually bolted to it.

Inside the bus, the left-hand front wheel arch is encased by a vertical 5½" x 2½" Flexible Plate 48 at the front and a 2½" x 2½" Flat Plate, extended three holes upwards by a 2½" x 2½" Flexible Plate 49, at the rear. The equivalent of Plate 48 in the right-hand wheel arch is a 3½" x 3½" compound flexible plate supported by two overlapping 3½" x 2½" Flexible Plates. The sides of both wheel arches are each enclosed by a horizontal 5½" x 2½" Flexible Plate 50, this Plate being edged outside along the top by a 5½" Angle Girder. The left-hand side Plate only is also edged along the bottom by a 5½" Strip, this Strip projecting one hole forwards beyond the edge of the Plate. Bolted vertically to the end of the Strip is a 2½" Strip, the upper end of which is bolted to the lug of a 2½" x ½" Double Angle Strip 51 secured to the side of the model. The lower rear corner of each Plate 50 is attached to the back Flat Plate

A general underside view of the roof showing the interior lighting fitments.





A close-up view of the rear of the model. Note that the darker-shaded plates are plastic plates overlaying stronger flexible plates for visual effect.

of the wheel arch by a 1" x 1" Angle Bracket. The top of the arch is encased by a 5½" x 2½" Flat Plate 52 bolted to the 5½" Angle Girder just mentioned. The rear edge of the Plate is connected by a 2½" Angle Girder to the Flat Plate at the back of the wheel arch.

Dealing now with the right-hand side of the model only, a 3½" Angle Girder 53 is bolted to the chassis member and fixed to the outer end of this Girder is a vertical 9½" Angle Girder 54, the securing Bolt passing through the fourth hole of the vertical Girder. The lower end of the Girder is connected to the 2½" Strip of the wheel arch by a Fishplate and the side panelling is then completed by a 5½" Flat Plate, a 5½" x 2½" Flexible Plate and a 5½" x 1½" Flexible Plate, the latter edged along the front by a 1½" Strip and along the top by the 12½" Strip edging the rest of the side panels. The forward edges of the Plates are bolted to a 9½" Strip 55 forming the front window pillar, then another six window pillars are provided at each side by a 5½" Strip, three 4½" Strips and two more 5½" Strips, the latter at the rear and projecting two holes higher than the others to provide strengtheners for the raised rear portion of the roof.

Along the left-hand side of the model, similar window frame uprights are provided, but instead of the bodywork being enclosed forward of the front wheel arch, a space for the access doorway is left clear. The doorway is edged by a vertical 9½" Strip 56 and a 9½" Angle Girder 56A bolted to the ends of a 5½" Strip overlaying the vertical flange of a 4½" Angle Girder 57 secured to the outer edge of thé access step Flat Plate by two Adaptors for Screwed Rod. These Adaptors serve as the lower hinge pivots for the twin doors, each of which is built up from two 7½" Strips connected at the top by a Girder Bracket 58 and further connected by a 2" Angle Girder at the bottom and a 2" Strip seven holes up, at the same time fixing two 3½" x 2" Triangular Flexible Plates in place to provide door panelling. The Adaptor for Screwed Rod locates in the inner end hole of the 2" Angle Girder where it is held in place by a Spring Clip when the doors are mounted in position. However, the doors should not be fitted at this stage.

The front bodywork is supplied by four overlapping 4½" x 2½" Flexible Plates extended outwards and backwards by two 2½" x 2½" Flexible Plates at each side, these curved gently to shape. The Plates are edged at top and bottom by a 7½" Strip extended at each end by a 2" Strip, the latter also curved to shape and bolted to Strip 55 or forward Strip 56 as appropriate. A 5½" Strip 59 is bolted to the front Plates for decoration, while two headlamps are each provided by a 1" loose Pulley overlaid by a ¾" Washer. Bolted to the centre of the upper 7½" Strip edging the front panelling is a 5½" Strip 60 curved gently backwards to serve as the windscreen divider.

A sill behind the windscreen is built up from a 7½" Flat Girder 61 extended at each end by a 2½" Stepped Curved Strip and attached to the front panelling by Angle Brackets. The Flat Girder partially overlays, though is not attached to, a 9½" Strip attached to Strips 55 and 56 by Angle Brackets. Attached in turn to this Strip by further Angle Brackets is a 9½" x 2½" Strip Plate 62 extended downwards at the left-hand side by a 2½" x 1½" Flexible Plate which is also bolted to the vertical flange of the 9½" Angle Girder bolted to the front ends of the floor 12½" Strips.

Turning to the rear of the model, two rigid corner posts are provided by vertical 9½" Angle Girders bolted to the rear ends of the side panelling. The upper ends of the Girders are connected by two 3½" Stepped Curved Strips joined by a 5½" Angle Girder 63, then the back is enclosed by, working from the top downwards, two overlapping 4½" x 2½" Flexible Plates extended outwards at each end by a Semi-circular Plate 64 with, below them, two vertical 4½" x 2½" Flexible Plates and, below again, a 9½" x 2½" Strip Plate, a 4½" x 2½" Flexible Plate, completely overlaid by a 4½" x 2½" Plastic Plate 65, and 2½" x 2½" Flexible Plate, this also completely overlaid by a 2½" x 2½" Plastic Plate 66. Between Plates 65 and 66 there is a gap serving as an air vent for the fan and this is edged by a 3½" Strip, two 2½" Strips and a 9½" Strip, the last bolted between the lower ends of the corner Angle Girders. The rear window is edged by two 5½" Strips and two 3½" Strips, the resulting gap between the lower Strip and the 9½" Strip Plate being enclosed by two 2½" x ½" Flexible Plates.

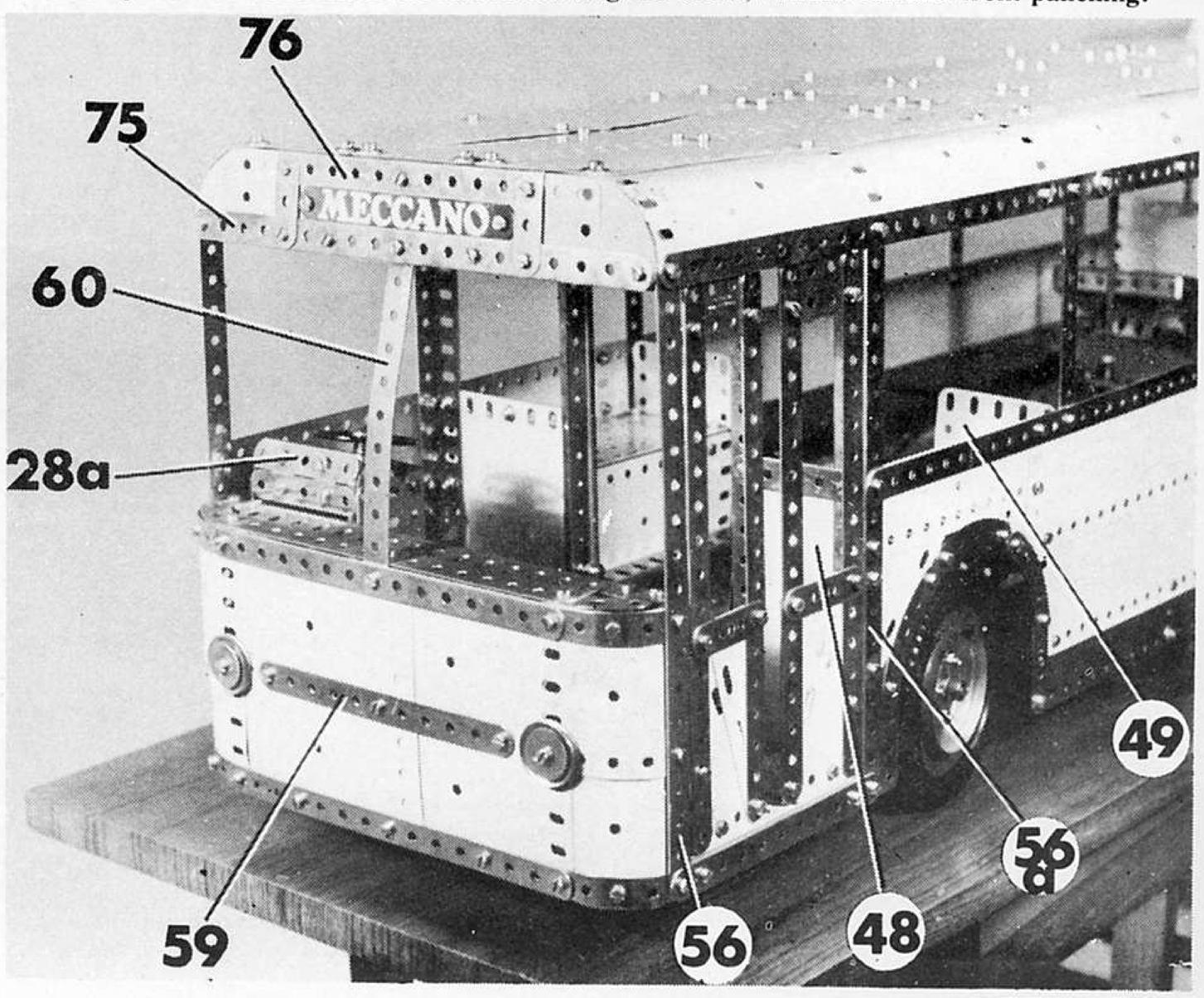
The upper edge of the back is attached to Angle Girder 63 by a 5½" Flat Girder.

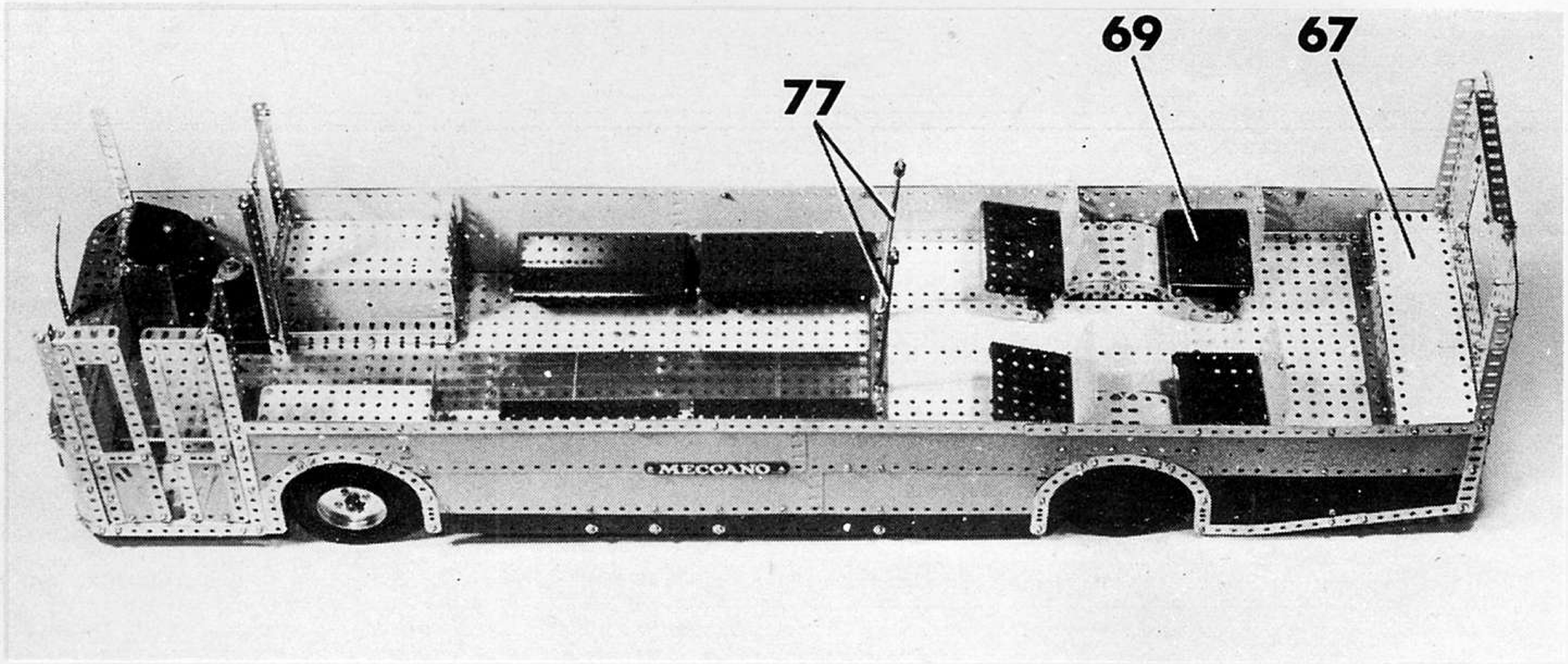
SEATING

Before building and fitting the roof, the internal seating should be completed. The rear seat is provided by a 9½" x 2½" Strip Plate 67 attached to the back of the body by Angle Brackets and enclosed at the front by a 9½" x 1½" compound strip plate built up from a 5½" x 1½" and two 2½" x 1½" Flexible Plates bolted to the vertical flange of Angle Girder 16. The compound plate is attached to Plate 67 by a 5½" Angle Girder 68.

Still in the rear, or raised, section of the model, all additional seats are each provided by a 3½" x 2½" Flanged Plate 69 between the corners of the flanges of which two 3½" x ½"

A close-up view of the front of the model showing the doors, windscreen and front panelling.





A view of the model with the roof removed to show the interior seating layout.

Double Angle Strips are bolted, the outer forward fixing Bolt at the same time securing the Plate to the side of the model. The inner forward fixing Bolt also holds a 2½" Stepped Curved Strip in place, this Strip being attached to the floor by a 1" x ½" Angle Bracket. In the case of two of the seats, a seat back is provided by a 3½" x 2½" Flexible Plate, while in the other two cases, two overlapping 2½" x 2½" Flexible Plates serve the same purpose.

In the forward compartment, four larger, inward-facing seats are each provided by a 5½" x 2½" Flanged Plate bolted to the side and braced at the front corners by 2½" Strips angled backwards and attached to the floor by Angle Brackets.

The driver's seat is provided by a Sleeve Piece attached to the floor by a Chimney Adaptor and topped by a ¾" Flanged Wheel. Behind the seat, Plate 48 is edged along the top by a 3½" Strip and extended upwards by a 7½" Angle Girder 70, the upper end of which is extended, via a 1" Corner Bracket and a 3½" Strip, to the top of Angle Girder 54. Attached to Angle Girder 70 is handrail supplied by a 6½" Rod held in Handrail Supports. At the other side of the model Plate 48 is edged by a 2½" Strip and extended upwards by a 7½" Strip which is attached to the upper end of Angle Girder 56A by another 2½" Strip.

At both sides of the model a footrest for the seat provided by the front wheel arch casing is supplied by a 5½" Angle Girder 71 attached to Plate 50 by Double Brackets at each end of the Girder.

ROOF

At last the roof can now be built, but, because internal lighting is attached to the underside, this should be built separately and attached to the model when substantially completed. The roof may be described as having two parts, a main section and a raised rear section. The main section, 35" long, is built up from nine 12½" x 2½" Strip Plates arranged in threes, side by side, with curved roof edges supplied by 5½" x 2½" Flexible Plates. Note that, towards the rear end of the section the roof angles downwards very slightly and this is achieved by taking full advantage of elongated holes and slight 'play' in the circular holes. Underside bracing is provided by two longitudinal 12½" Flat Girders, three transverse 7½" Flat Girders, a 3½" Flat Girder 72, the 5½" Strips and a 7½" Strip 73, all arranged as shown. Note particularly that one of the 7½" Flat Girders is situated at the rear end of the roof section and Bolts fixing it in place also secure a 4½" Angle Girder to the back of the section. Bolted to the vertical flange of this Angle Girder is a 2½" x 1½" Flexible Plate, extended four holes outwards at each end by a 3" x 1½" Flat Plate 73. Each Plate 73 is itself extended outwards by a 2½" x 2" Triangular Flexible Plate 74.

The outer upper edges of Plates 73 and 74 are edged by a 5½" Angle Girder extended at each end by a 3½" Stepped Curved Strip. The outer end of the Curved Strip is attached to the outer corner of Triangular Plate 74 and at the same time is bolted to the upper end of a 1½" Angle Girder which will later be secured to one of the side window uprights.

The rear raised section of the roof is then enclosed by four central 5½" x 2½" Flexible Plates, suitably overlapped, extended outwards at one side by four overlapping 4½" x 2½" Flexible Plates and, at the other side, by two longitudinal 4½" x 2½" Flexible Plates themselves extended by four 2½" x 2½" Flexible Plates. The outer plates are of course all curved to shape to round off the edge of the roof. The rear plates of the roof are bolted to Angle Girder 63.

LIGHTING

As the designer used his original model for demonstration purposes, he included an internal lighting system which makes use of some electrical components not included in the No. 10 Set. Modellers who do not wish to include the lighting may now finish the model by edging the roof along its entire length by suitable Perforated Strips, at the same time bolting the roof to the upper ends of the side window uprights. Note that the Bolt fixing the left-hand front corner of the roof to Strip 56 also holds an Angle Bracket and a left-hand Corner Angle Bracket in place. The spare lug of the Corner Angle Bracket serves as the upper pivot point for the front door, a ⅜" Bolt held by a Nut in the inner end hole of Girder Bracket 58 of the door locating in the hole in the Corner Angle Bracket lug. A ⅜" Bolt held by a Nut in the Girder Bracket of the other door locates in the hole of an ordinary Angle Bracket bolted to the top of Angle Girder 56A.

Bolted between the ordinary Angle Bracket at the top of Strip 56 and Strip 55 at the other side is a 9½" Strip 75, the securing Bolts also holding two Semi-circular Plates in position, one at each side. The space between the Plates is enclosed by three 2½" x 1½" Flexible Plates bolted to Strip 75 and edged along the top by a 5½" Angle Girder 76. Bolted between each end of this Angle Girder and Strip 75 is a 1½" Strip, the resulting box representing the route indicator panel. A Meccano nameplate makes a good substitute for a route indicator! The front end of the roof is bolted to the horizontal flange of Angle Girder 76.

Inside the model, two roof supports 77 are each provided by an 8" Rod located by a Collar in a hole in the 9½" Girder edging the front of the raised portion of the floor. The upper end of the Rod is fixed in a Rod Socket secured to the roof.

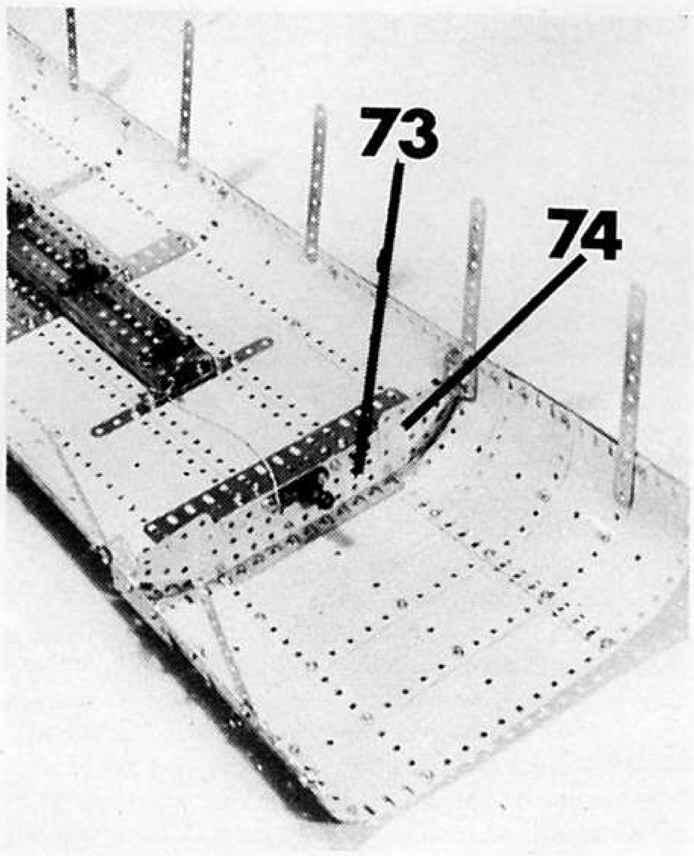
For those modellers who do have the equipment and wish to include lighting, a support-frame is built up from two 24½" Angle Girders 78 attached to two 2½" Strips which are themselves secured to two of the 5½" Strips bracing the underside of the roof, but note that they are held away from the roof by two Washers and a Nut on the shank of each Bolt. Note also that one Girder 78 is attached to the Strips by Insulating Spacers to electrically isolate it, while the other is attached by Angle Brackets on Bolts packed appropriately with Washers.

Bolted to Angle Girders 78 are seven Lampholders, with lamps, while another Lampholder is attached to the vertical flange of the Angle Girder to which Plates 73 are bolted. Note that one terminal of this Lampholder must be earthed by bolting it direct to the metal of the model, while the other terminal must be insulated. This can be achieved by using a non-Meccano nylon bolt or a thin 6 B.A. bolt fitted with an insulating washer. The insulated terminal is connected by a length of insulated wire to insulate Angle Girder 78.

Another length of insulated wire is taken from any point on the insulated Angle Girder, is run down one of the rod roof supports 77 and taken to a 2½" Insulating Flat Girder 79 bolted towards the rear end of the left-hand chassis member. One of the fixing Bolts serves as the other terminal for the lighting circuit. Insulated wires from the two Power Drive Units are taken to separate insulated terminals added to the Insulating Flat Girder and this finally completes the model.

See the contents list of the No. 10 Set for the Parts Required list for this model.

An underside view of the rear of the roof in close-up.



Southern Railway 'Schools' Class

4-4-0 Locomotive with Tender C. 1931

Constructed and described by MIKE COTTERILL Photographs by JOHN WOODWARD

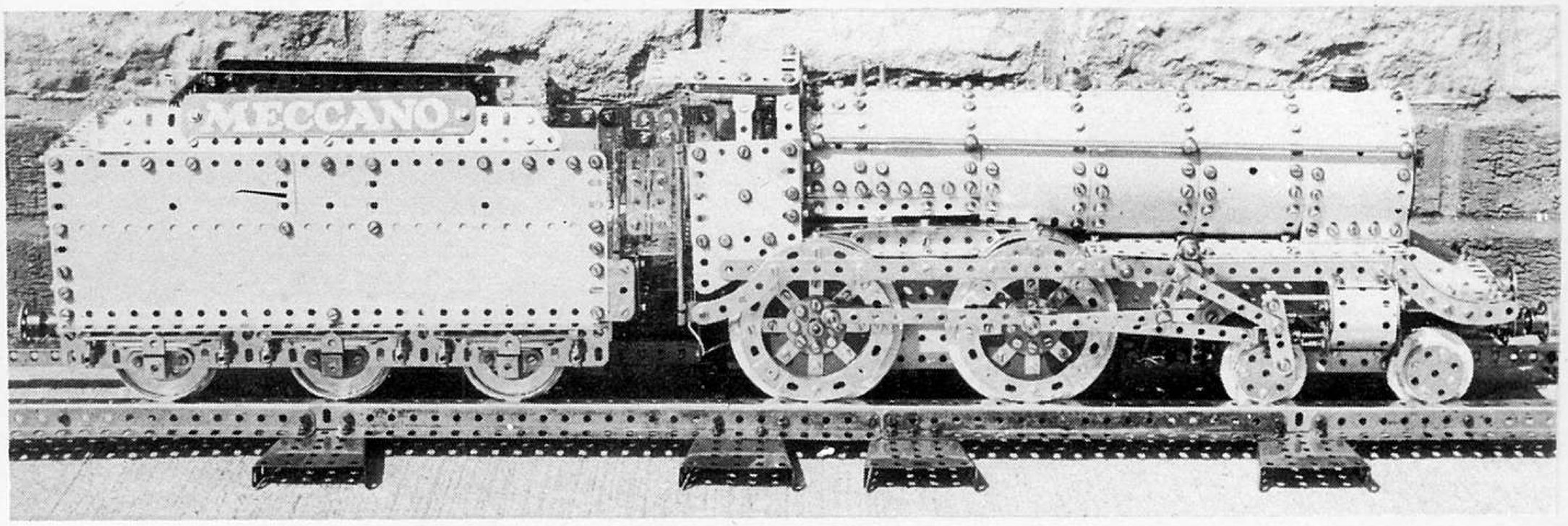


Fig. 1 A general view of the right hand side of the locomotive showing the faithfully represented lines and details of the prototype. Note the skilfully constructed boiler, leaving a minimum of vacant holes.

LIKE most Meccano Enthusiasts I find Railway Locomotives attractive modelling subjects. For Club Meetings, Exhibitions and Charity Shows I aimed to produce something that would actually travel and reverse automatically, be easily portable and reasonably faithful to its Airfix 00 Scale Construction Kit prototype.

The heart of the model is the drive unit shown in figs. 2, 3 and 4. An E20R Meccano Electric Motor, very similar to the recently discontinued E15R version, hangs vertically with it's switchplate towards the track. It is entended forwards by the mainframe sideplates consisting of 5½" x 3½" Flat Plates spaced by 2½" x 1½" Flanged Plates. The motor is positioned a little to one side, and by careful siting of gears along shafts, four 5:1 reductions are achieved. Final drive to the front driving wheels is by a ¾" Sprocket to a 1½" Sprocket. During construction I found it important to incorporate a facility to vary gear ratios as I had no real idea of how the E20R motor would cope 'on the track', but in practice, if the 'works' jam up the Grub Screws in the Sprocket Wheels slip and by thus permitting their Axle Rods to rotate in their Bosses, provide protection for the motor. It is imperative that both driving wheel axles move together, connected as they are by the coupling rods, and this is achieved by the Contrate Wheels and Pinions as shown in fig. 4.

The drivers are constructed from 4" Circular Plates mounted on doubled Bush Wheels with 'packs' of 2½" Stepped Curved Strips reproducing the flanges. Each 'pack' consists of five Strips spaced by thin Washers on Long Bolts, the ends being carefully interleaved with it's two neighbours. The radii of the 2½" Stepped Curved Strips are not really compatible with the mounting holes on the 4" Circular Plate but by gently 'splaying' each pack of Strips very slightly, a perfect circle can be obtained. The weight of the model passes from the innermost Strip of one pack to the outermost Strip of the adjacent pack, with each quarter rotation of the driving wheel.

The prototype had three different wheel sizes. Face Plates with Wheel Flanges were ideal for the Tender wheels, the smaller front bogie wheels were reproduced by bolting six 8-Hole Wheel Discs to 2" Pulleys. Although an unusual arrangement of parts, it has been very successful.

For continuous running, power is supplied via a trailing lead, but the model also incorporates two long Wiper Arms capable of being lowered on to the track to receive current fed through the rails. Electrical insulation is pro-

Fig. 2

Below: A view from the top of the chassis, after the cab and boiler have been removed, showing the E20R motor and reduction gearing.

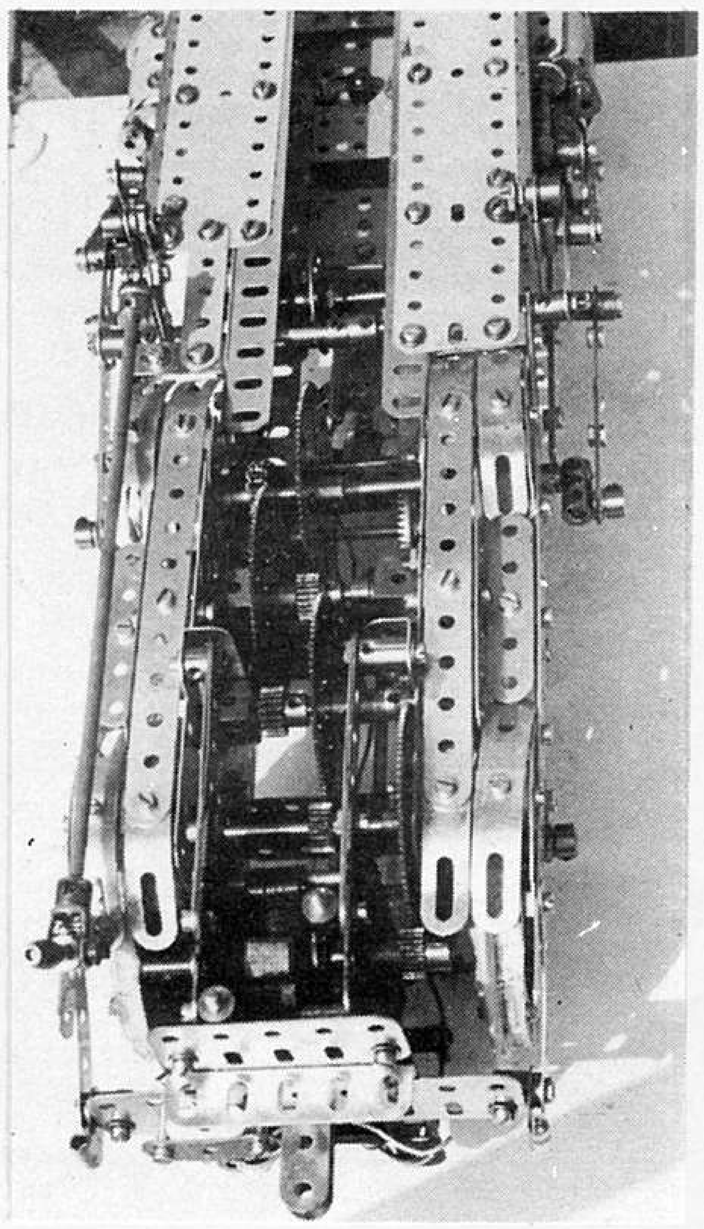
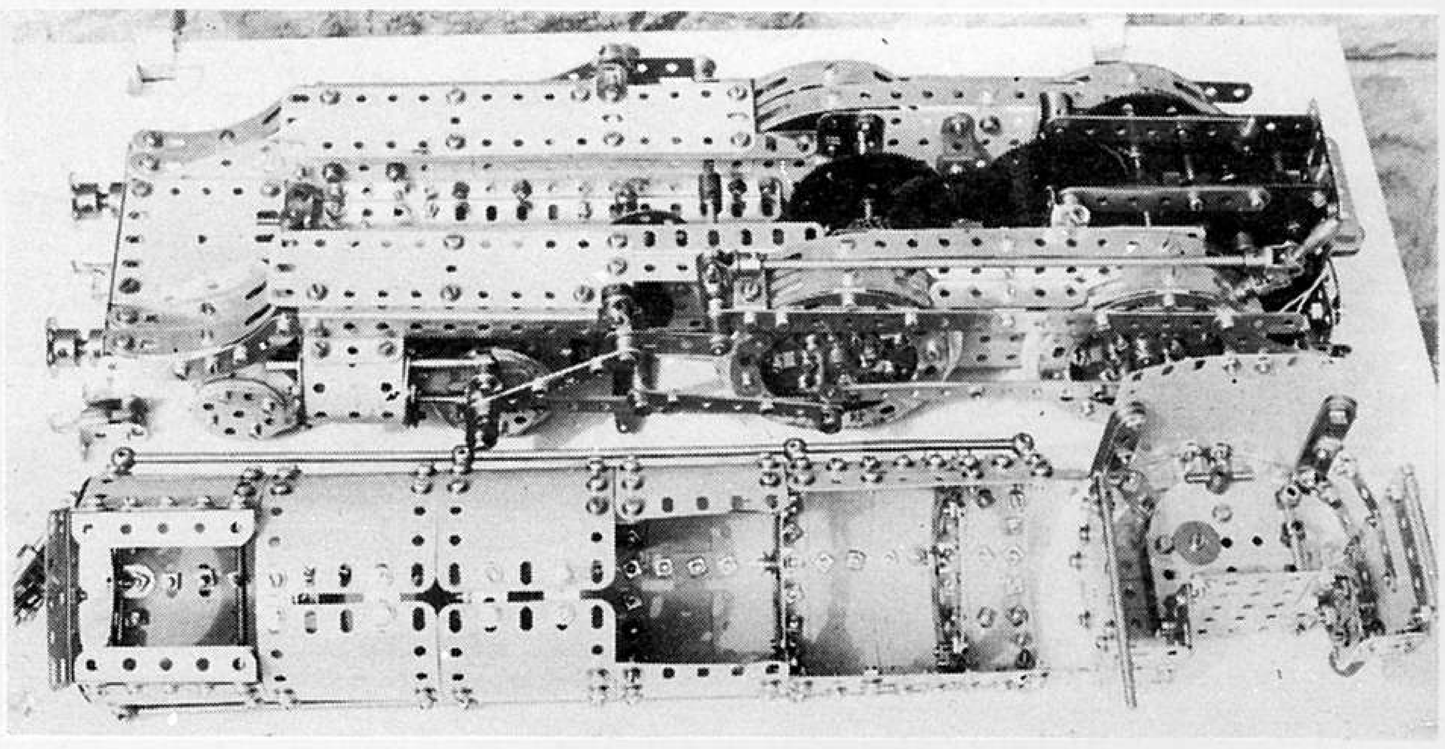


Fig. 3

Below: Shown here separated, the locomotive chassis and the boiler and cab sub-assemblies. Note the cab interior detail.



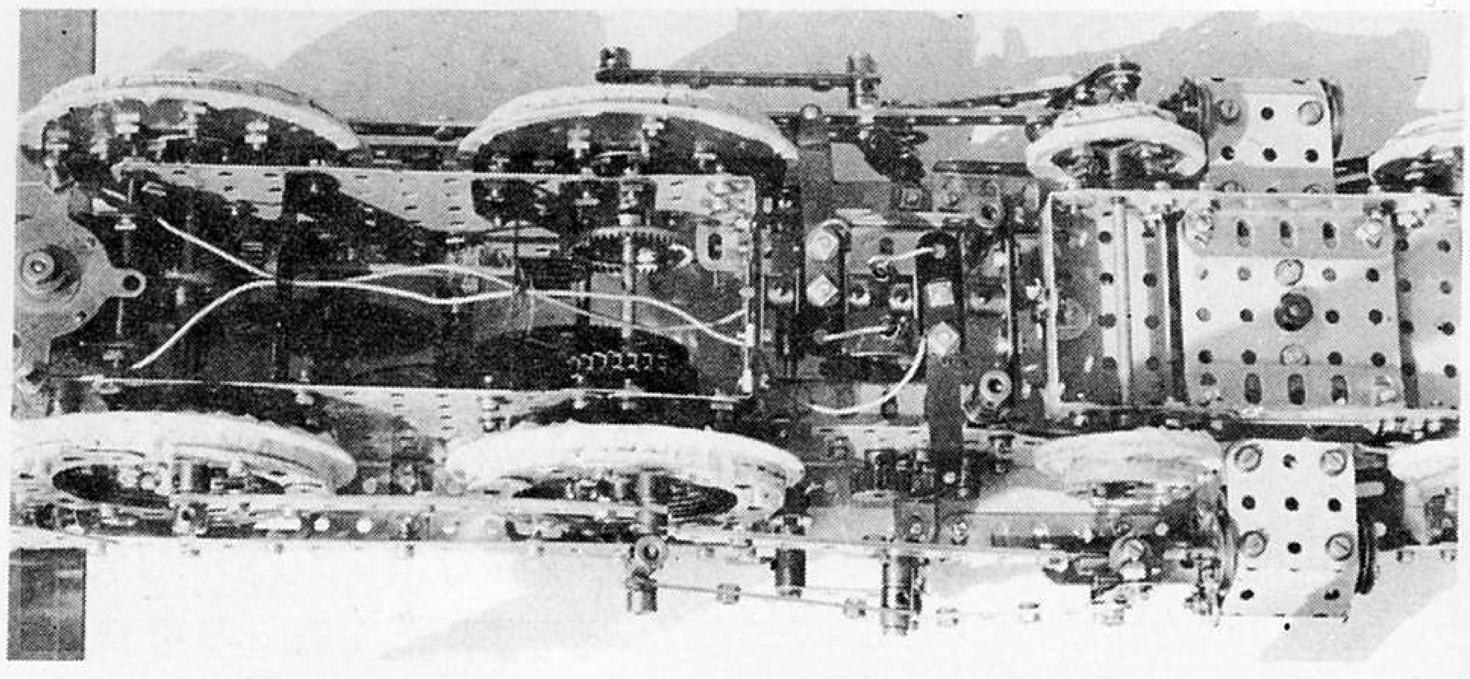
vided by masking tape edging around all the wheels which, incidentally, reduces wear on parts.

The cab and boiler can be removed by unscrewing two Threaded Bosses enabling closer inspection of the construction details. The boiler is formed around circles of 2½" Stepped Curved Strips, the Flexible Plates being abbutted wherever possible, rather than overlaid. Each join is underlaid by 5½" x 1½" Flexible Plates to eliminate empty holes. The chimney is modelled in an unconventional but effective manner by means of a ¾" Flanged Wheel bolted to the boiler, it's boss being widened out by coils of Meccano Cord.

The piston and valve motions are fully reproduced and contribute to the realism of the model when working. Coupling bars are made from several thicknesses of Narrow Strips, joined by long Grub Screws with a Nut mounted on each protruding end. The crosshead, consisting of a Slide Piece, runs on a 2½" Strip projecting from the steam chest.

Automatic reversing, of great value in display work meaning the model can be left for long periods unattended, is accomplished by mounting two short Threaded Pins on the E20R switchplate. A Coupling at each extremity of the six feet long track is positioned to switch the plate from one side to the other by means of engaging a Threaded Pin and allowing the loco's momentum of travel to effect the reverse switching.

The following statistics may be of interest; Length 35". Width, (excluding steam chests and external motions) 5". Weight 19 lb. Gauge of track, 5" No. of Stepped Curved Strips used, 100.



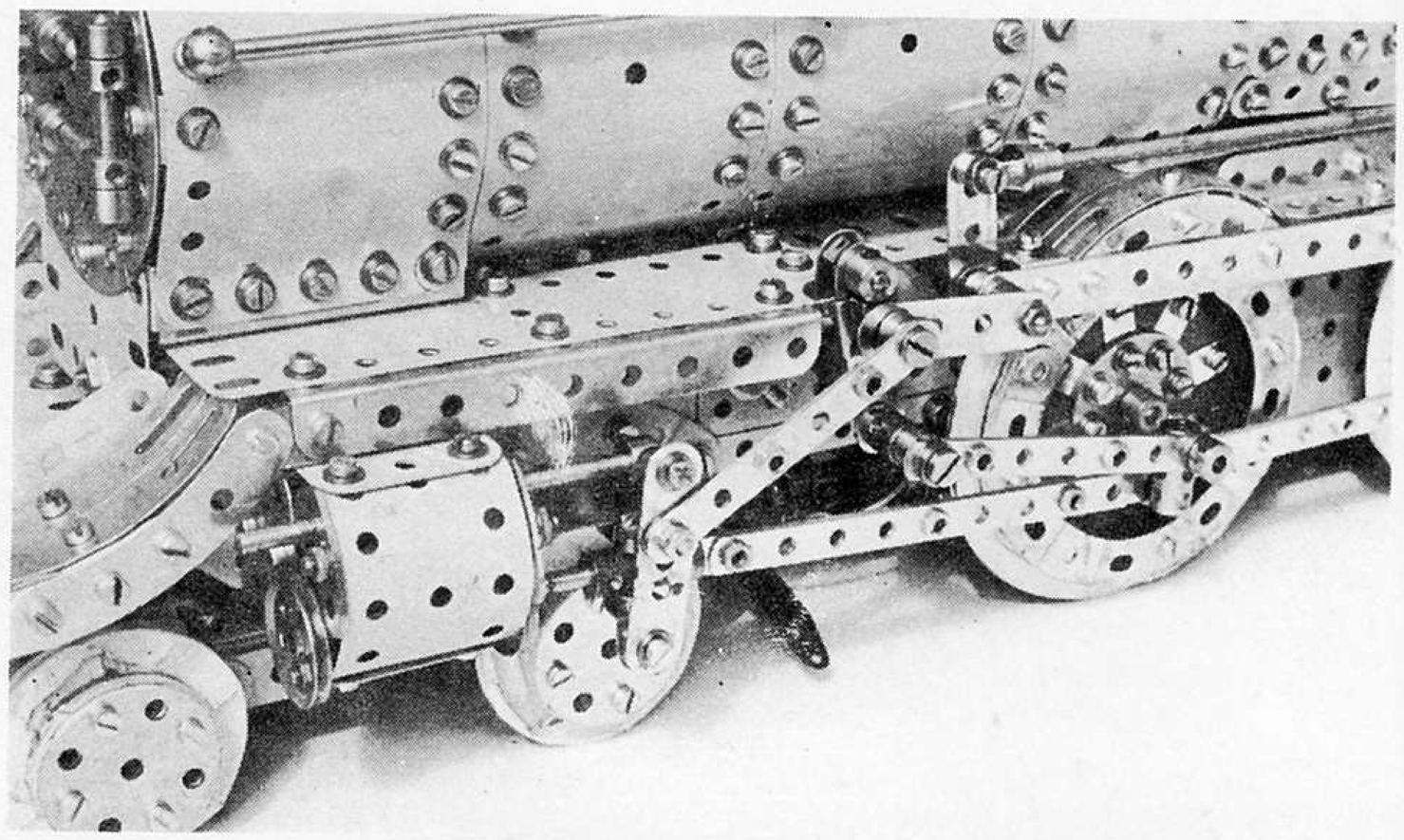


Fig. 4
Above right: Underside of locomotive chassis showing position of Wiper Arms and insulating material around the wheels.

Fig. 5
Right: A close-up view of the detailed valve gear.

Show Stopper!

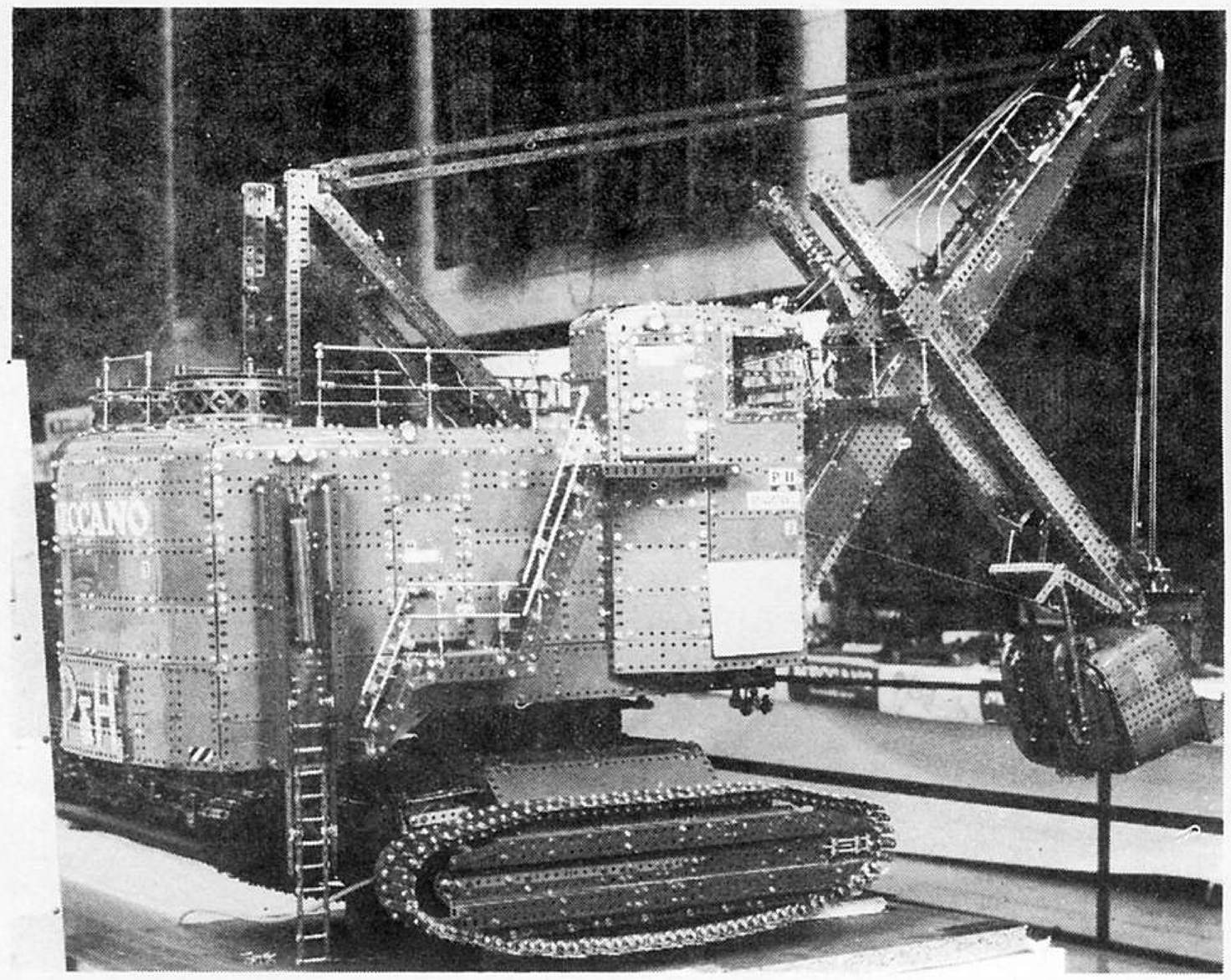
SEEN on the Transvaal Meccano Guild's stand at the Easter 1979 Rand Fair in Johannesburg, South Africa, was this truly stupendous boom-type Excavator by Paul Hatty.

Paul, who graduated from university as an engineer, used a staggering 10,000 Meccano parts in the construction of his model, which is of a P & H 2100 BL design. Consuming some three and a half years of Paul's spare time in the making, the completed model reproduces every function of the original. What's more, the motions of travelling, slewing, bucket raising and lowering are all effected in scale time, no mean achievement in itself!

Approximately 160 links make up the two caterpillar tracks on which the model travels, although for display purposes the excavator was mounted on wooden blocks for the duration of the show. Other details of note include powered racking of the shovel arm, full ladderwork, handrails etc; and working observation lamps situated so as to illuminate the working area, doors and walkways. These are replicas of the pre-war Motor Car Headlight units, manufactured by the Transvaal Meccano Guild.

Built to a scale of 1:12 and finished mainly in the red and green colour scheme with zinc-plated strips for edging purposes, the model certainly deserves a long life in front of exhibition crowds. To this end, one can only hope that Mr. Hatty was joking when he remarked to a newspaper reporter that he was going to take it apart and build another model as soon as the show was over!

Below: Bucket discharge mechanism, access doors, laddering and many other fine details can be seen in this view of the right hand side of the model. Photograph kindly supplied by Jacques Rossouw, Secretary of the Transvaal Meccano Guild.



NORTH WEST FRONTIER

by Michael J. Walker

LIVING in an affluent, westernised, throw-away society as we do, the word 'Obsolete' denotes something that has served its purpose and is now due to be discarded and replaced with new. Housewives eagerly replace their Washing Machines when a newer, more automated model is introduced, various makes of Motor Car suddenly depreciate in value on the announcement of a later model. Hi-Fi units boast proudly of their superior, up-to-date refinements, inferring that all earlier types are in some way not as good and should be replaced. In fact the word 'Obsolete' generally conjures up visions of old, decrepit consumer durables cluttering the benches at Jumble Sales and Second-Hand shops. Apply this term to Meccano parts, however, and a totally different picture emerges!

Although the Meccano trade name was only registered in 1910, Meccano parts as such were available in the 'Mechanics Made Easy' Outfits sold before even then. Thus, it is interesting to note that the Anchoring Clip for Wheels that was introduced in 1901 with the 'MME' sets, suffered an early demise in 1912 when this form of affixing wheels to Axle Rods was superseded by the familiar Boss with Set Screw of today. The Anchoring Clip for Wheels was therefore one of the very first obsolete parts, quite a distinction! Thus it can readily be seen that out-of-production Meccano parts have been a feature of the Meccano scene from the very earliest times, they are not a modern phenomenon at all.

Whereas our previously mentioned housewife may express delight at disposing of her obsolete washing machine, and motorists may eagerly trade-in their old cars for new, the Meccano enthusiasts of our time behave in exactly the opposite manner by conserving, enthusing over and lovingly restoring their obsolete Meccano parts! This extraordinary situation is, I believe, the result of a combination of circumstances unique to the Meccano Hobby, and Meccano certainly is a unique Hobby! Undeniably, the biggest single factor contributing to today's avid interest in these parts stems from the fact that, since its invention, Meccano has adhered to its original size, and equidistant spacing of holes.

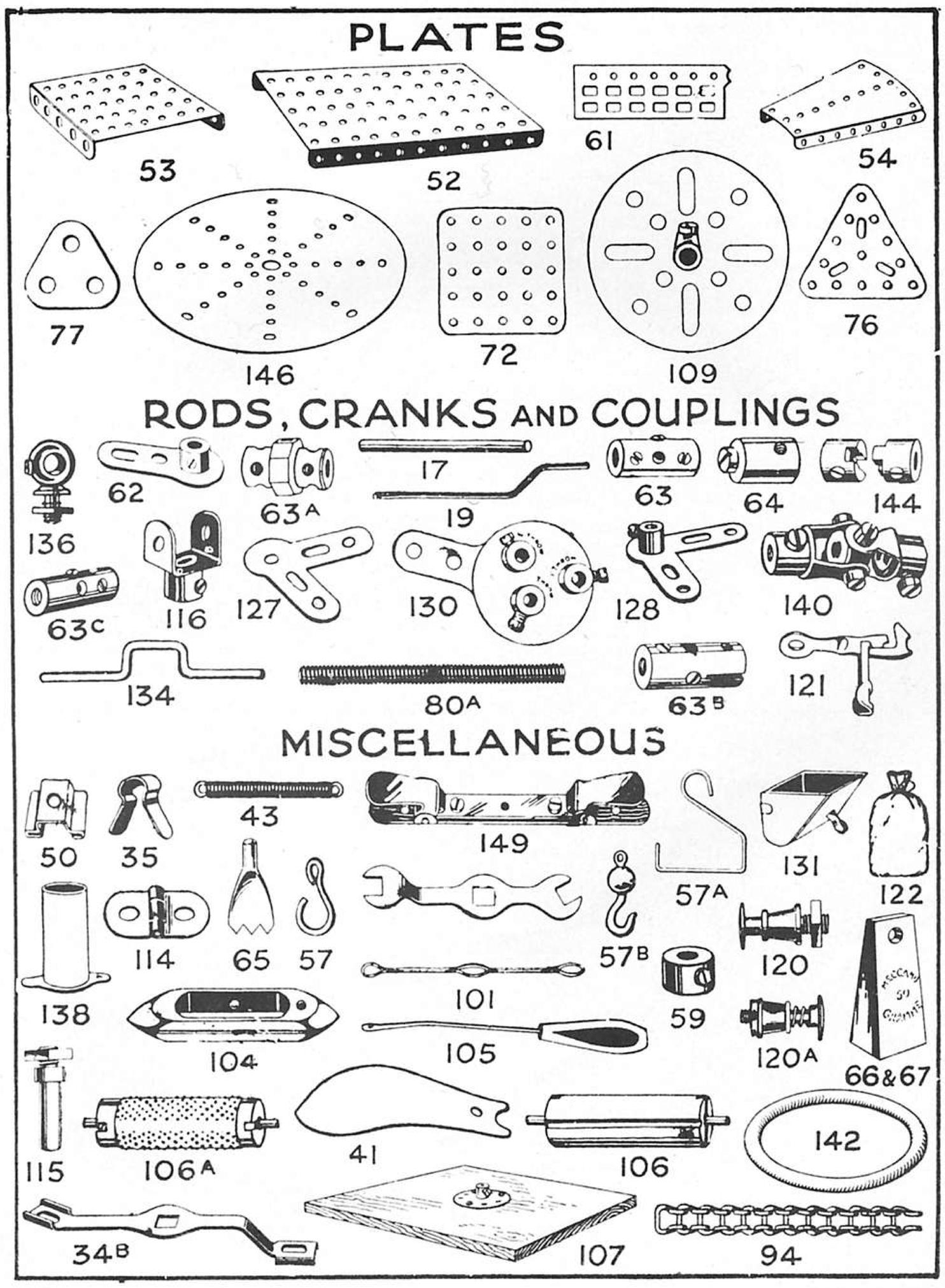
Despite the many changes of colour, rearrangement of Outfit contents and introduction and deletion of a huge variety of components over its 78 years of existence, the crucial factor of hole size and spacing, the common denominator as it were, of all Meccano parts, has remained unchanged. This means that the crudely fashioned 'Mechanics Made Easy' parts, assembled into boxes and tins at the tiny premises at Duke Street, Liverpool in 1905, will fit the latest, 1979 iridescent finish Strips and Girders contained in the 'Meccanoids' set, perfectly! This astonishing fact is I believe the main reason why, to a Meccano modeller, older Meccano parts are practically as welcome as new ones are, even if they are not of an out-of-production design.

People like myself who unashamedly admit to attending Jumble Sales and sorting through job lots at Auctions etc., reap the benefit of Meccano having been produced for so many years, in that old Meccano Outfits are commonplace and cheap too! Very occasionally one may be lucky enough to locate a very early example, containing some of the rare Obsolete parts. Quite simply, anything not now in the current range of Meccano parts can be termed Obsolete. Some of these are only recent newcomers to the Obsolete range, for example the Spoked Wheel and Cone Pulley, but the vast majority are Pre-War designs such as Wire-Line For Clock Weight, Pendulum Connection, Grease Cup etc. Perhaps I need hardly mention that most fabulous of all Obsolete parts, the Geared Roller Bearing part 167. Anyone lucky enough to find one of these for a few bob in the local Flea-Market can very quickly realise a handsome profit by selling it to any Meccano historian!

This brings me nicely to my final point, that of the heavy demand for such parts from large numbers of advanced constructors worldwide. As modelling in the many Meccano Clubs reaches ever higher standards, it has lately become very much the 'in' thing to attempt, as far as possible, to build models from old instructions manuals and leaflets in contemporary parts and colours. There's no denying the distinctive appeal of such constructions, so effectively conveying the atmosphere of the early Meccano days.

Far from discarding older Meccano parts in his Outfit, the Modeller of today realises their enduring value and the solid contribution they are capable of making to his Hobby. For those who have not yet discovered the extra dimension the wealth of discontinued parts can add to their Meccano modelling, I heartily recommend a browse through your nearest Junk Shop. Who can tell?—there may be a rare Nickel-Plate Geared Roller Bearing 'Going for a Song'!

This page from a 1913 Meccano Manual of Instructions details many parts not available in the current Range.



MECCANO

and the History of Aviation

by Brian W. Williams

Part 1: Introduction

THIS series of articles is not intended to be a detailed history of aviation, but rather a brief survey covering the historical background, and including some of the more important developments and notable aircraft since the advent of powered, controlled flight in 1903. It is hoped to illustrate the series with models in Meccano, and to mention some of the aeroplane models which have appeared in Meccano literature.

AIRCRAFT have been popular modelling subjects with enthusiasts for many years, and many excellent models in both flying and non-flying form have been produced in various materials by model-makers all over the world. Non-flying scale models of aircraft still enjoy a vast following today, chiefly as a result of the introduction of the injection-moulded plastic kit, and this is by far the most popular material.

Aircraft models have also been popular with many Meccano enthusiasts since the early days of Meccano, and several admittedly rather simple and unrealistic models were published in early Meccano Manuals, such as the simple Monoplanes for Outfit No. 2 published in the 1913 and 1919 Manuals, which appear to have been based on the Bleriot XI of cross-Channel fame.

One of these models is shown in Fig. 1.

It should be mentioned however, that the restricted range of Meccano parts available at the time, for instance the lack of Flexible Plates, did not make the modelling of realistic aeroplanes in Meccano very easy. Additionally, Meccano aircraft models of the early nineteen-hundreds reflected to a large degree the state of the art of aviation as it existed at the time, i.e. what has rather unfairly become known as the 'Sticks and String' era.

Aircraft models also featured from time to time in Meccano competition entries and a number of excellent, good, and mediocre models were illustrated in Meccano Magazine in the late nineteen twenties and throughout the thirties.

The popularity of flying, and interest in aircraft generally, resulted in the introduction by Meccano Ltd in October 1931, of the Aeroplane Constructor range of sets and parts. The sets and parts were produced until 1940/41, with numerous changes and improvements to the range, until it was discontinued due to the Second World War, never to re-appear. An article describing Aeroplane Constructor, by Bert Love, appeared in the MMQ for July 1974, and a further article by the same author appeared in the M.M. for April 1978.

Figure 2 shows a single-engined monoplane model as illustrated in the 1939 manual for the No. 1 Aeroplane Constructor Outfit.

In view of the continuing popularity of model aircraft today, it might be interesting to speculate on how the Aeroplane Constructor range might have been enlarged and improved if it had not been brought to its early demise by the War. It is most probable that the basic components would have been up-dated and redesigned from time to time, to reflect current trends in aeronautical design and to enable modellers to build aircraft of modern appearance, in much the same way that the introduction in recent years of the Meccano Multikits, and more recently still, the latest changes to Meccano sets and parts, have had the effect of updating and modernising some areas of the standard Meccano range.

This trend (in Aeroplane Constructor) was taking place before the outbreak of war in 1939, as can be seen by comparing the earlier 1931/32 range of parts with the vastly superior range available in 1939, towards the end of production.

In spite of the restricted and somewhat antiquated range of parts available, it is possible for the present-day owner of Aeroplane Constructor parts to build a reasonable selection of models—although such models are in the main restricted to vintage types, i.e: those of prototypes in existence prior to World War II. It is, of course, hardly practicable to produce scale models of aircraft in this medium, as the Aeroplane Constructor range was originally designed only to enable owners to build representative aircraft models. Fuselage parts are one of the biggest drawbacks in modelling modern aircraft, as the Aeroplane Constructor fuselage is virtually rectangular in cross-section, which tends to eliminate any prototype with a more streamlined or circular fuselage. Certain other prototypes are also difficult to model realisti-

Fig. 1

MODEL No. 76. **Monoplane**

(MADE WITH MECCANO OUTFIT NO. 2 OR NO. 1 AND NO. 1A.)

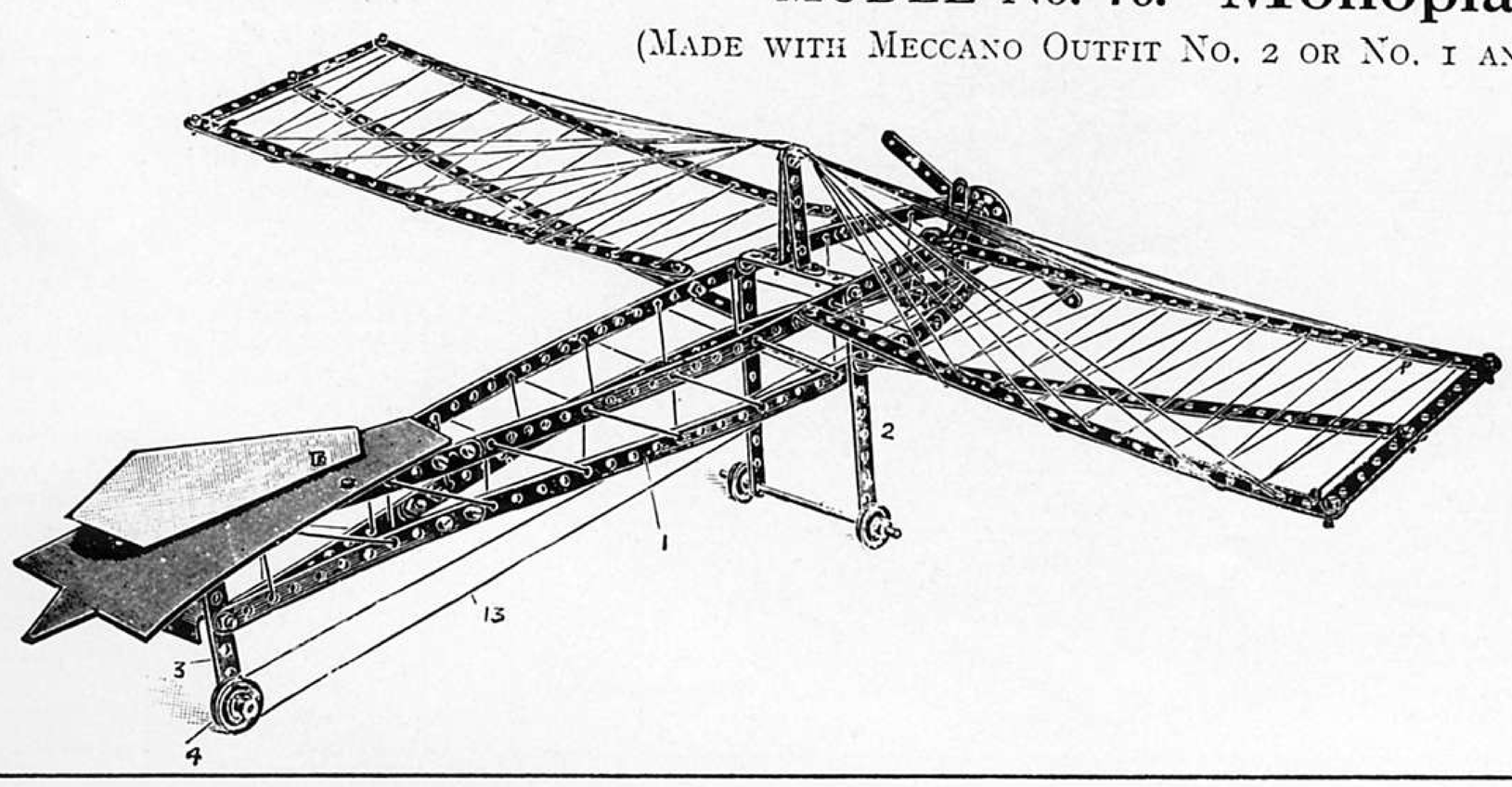
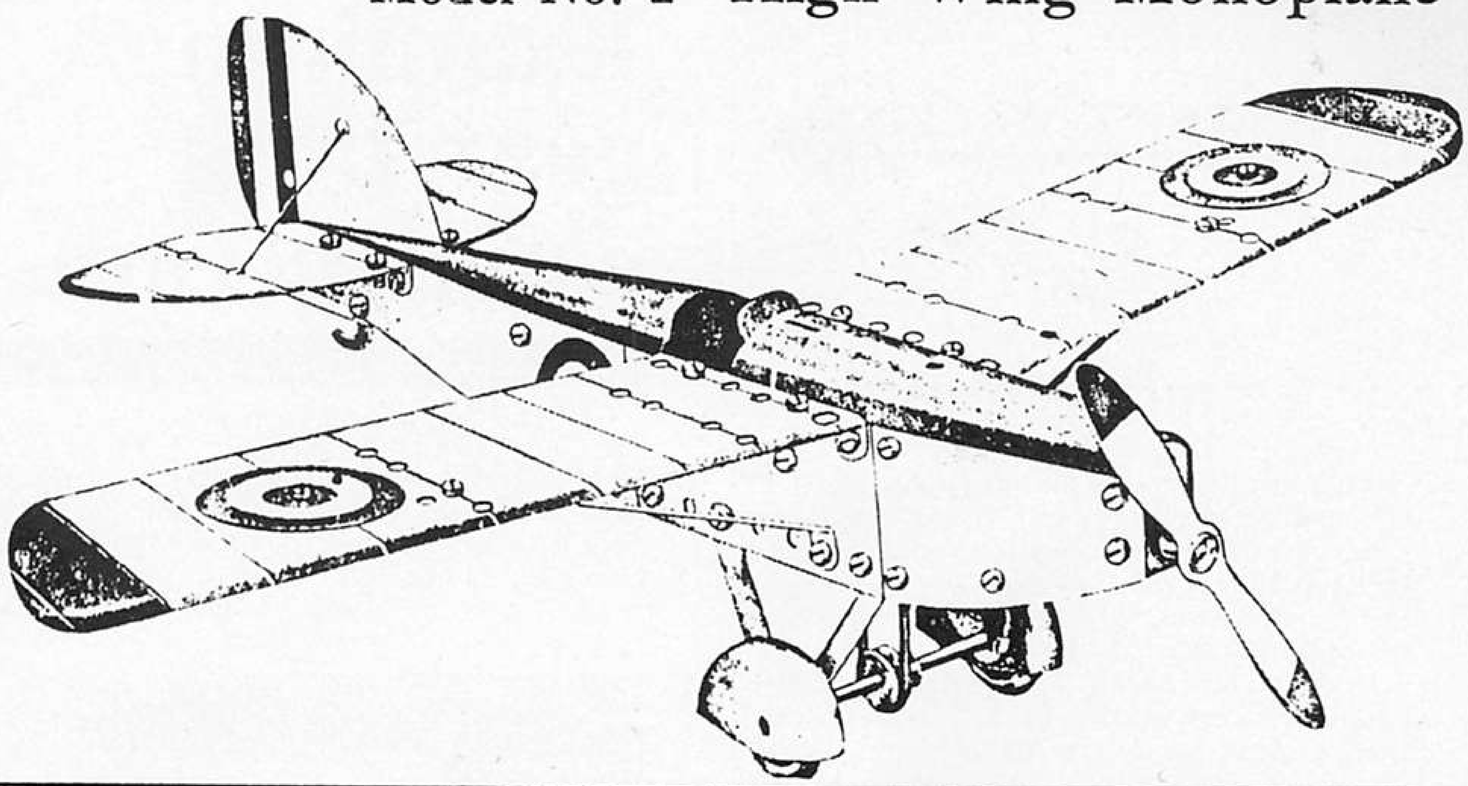


Fig. 2

Model No. 2 High Wing Monoplane



High wing monoplanes are usually more stable than the low wing type, and the view downwards is much better, being practically unobstructed.

Machines of this type are used in all parts of the world, and they range from small single-seater machines to huge aircraft seating as many as 40 people.

A British example is the Wicko two-seater light cabin monoplane, which is fitted with a 130 h.p. D.H. "Gipsy Major" engine, and has a top speed of 140 m.p.h. Other notable machines include the Heston "Phœnix," a five-seater of similar type. A good example of a military high wing monoplane is the Westland "Lysander" army co-operation machine.

cally, as will be discussed later in this series.

In spite of these disadvantages, it is possible to build quite effective vintage models with Aeroplane Constructor parts, as is shown by the example in Fig. 3, which represents a single engined cabin biplane of the nineteen thirties, but is not based on any specific prototype.

Difficulties are also met with when building accurate models of prototype aircraft in standard Meccano, but the problems vary, depending on the era to which the chosen prototype belongs. In this connection, the history of aircraft may be divided conveniently into the following periods:

Pre-1903 (and also 1903 to 1914): Actual flying machines were of frail and flimsy appearance; it is difficult to capture the character of these aircraft in Meccano.

1914 to 1933: This is probably the most useful era for the Meccano aircraft modeller: there is an enormous choice of prototypes, almost all of which are capable of being represented in Meccano with only minor departures from the appearance and proportions of the original. Although primarily the era of the biplane, numerous monoplanes and other types appeared during this period.

1933 to 1945: The era of the modern monoplane began in 1933 with the introduction of aircraft such as the Boeing 247 and the Douglas DC-1. Models of aircraft of this era may be built successfully in Meccano, aided by the thoughtful use of parts such as Flexible and Plastic Plates, and numerous examples, many of which lend themselves to some degree of improvement, have been illustrated in Meccano literature of the period.

1946 to date: The tremendous impact of the Second World War on aviation design and development resulted, inter alia, in the dawning of the present jet age, and produced the forerunners of aircraft such as today's Concorde. The difficulties of representing such aircraft in Meccano are underlined by the appearance of relatively few models in post-war Meccano literature and at exhibitions. Nevertheless such streamlined subjects tax the skill of the Meccano modeller, and successful models are of topical interest at exhibitions, demonstrating that Meccano is up-to-date and not necessarily confined to models of the past. Some excellent up-to-date models have been built, for example Frank Beadle's model of the Lockheed SR-71 'Blackbird' illustrated in M.M. Jan 1978.

Whichever era or prototype is chosen, it is of course, important to get the proportions correct, as in any other sphere of Meccano modelling, and drawings of the prototype giving basic dimensions are invaluable in this respect. Similarly photographs are also useful, particularly if used to complement scale drawings, and many sources are available, including past issues of the Meccano Magazine, many of which carried prototype articles and such features as 'Air News'. Numerous books, magazines and other publications are available as source material; a few worthy of random mention are the Blandford colour series, 'The Pocket Encyclopaedia of World Aircraft in Colour', the fortnightly 'Aviation News', and Profile Publications, the latter unfortunately no longer published.

Many excellent models in standard Meccano parts covering the whole history of powered flight have appeared in Meccano literature over the years. It would be impractical to endeavour in this series of articles to list them all—they are in any case listed elsewhere in Meccano literature—but a few that are probably familiar to most Meccano enthusiasts include the following:

RACING SEAPLANE: Published in the 1932 No. 7 Manual and also appeared in the 1934 L Outfit Manual. Based on the Supermarine S 6B Schneider Trophy aircraft of 1931.

3 — ENGINED BIPLANE: Details published in M.M. Jan/Feb 1929 and also published as S.M.L. 34. This model is a reasonable representation of the Armstrong-Whitworth 'Argosy' airliner of 1926.

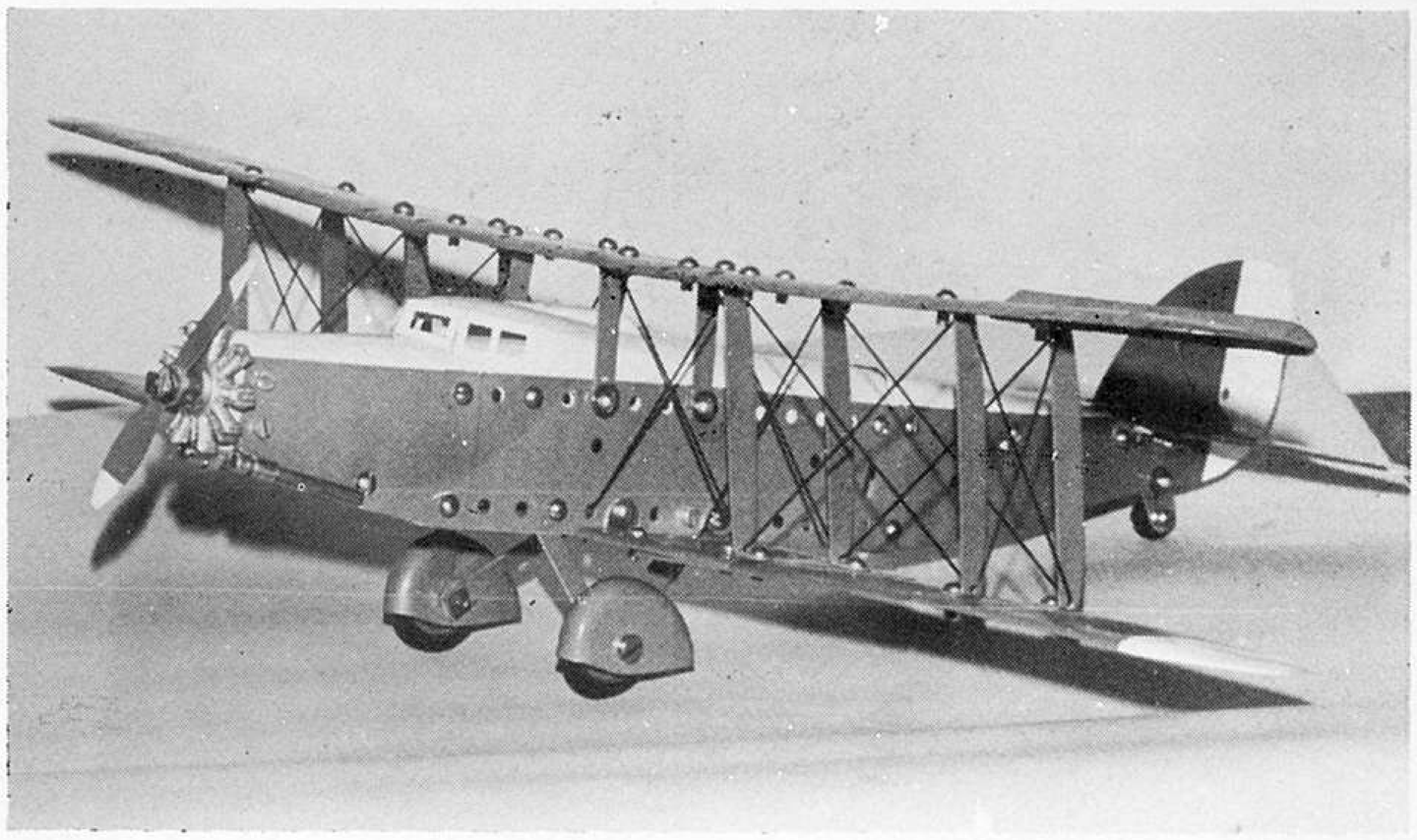
TWIN-ENGINED FLYING BOAT: This model appeared in No. 6 Outfit Manuals between 1938 and 1948. It is typical of the biplane Flying Boats of the period before the Second World War and is reminiscent of the Supermarine 'Stranraer' of 1936.

HELICOPTER: An Outfit No. 5 model of the 1954-61 period. In spite of its apparent simplicity this model is surprisingly close in general appearance and proportions to the Sikorsky S.51 helicopter of the 1950's.

OBSERVER PLANE: A high-wing monoplane model published in the No. 4 Manual of 1962. Apparently based on the Taylorcraft 'Auster' observation aircraft of World War II, it is also similar in general appearance to other prototypes, for example the Piper 'Cub'.

These aircraft models, and others, will be described and illustrated in future articles in this series.

Fig. 3



PRE-HISTORY

The era of powered heavier-than-air flight began in 1903 with the success of the Wright brothers, Orville and Wilbur, and the aim of this series is to present a brief history of powered aircraft since that epoch-making year, illustrated by models in Meccano.

The story of powered flight falls naturally into a number of historically convenient periods and it is hoped that each of these periods may be covered in one instalment. It was the writer's original intention to commence the story with the year 1903, as that year also relates approximately to the introduction by Frank Hornby of 'Mechanics Made Easy', the forerunner of Meccano. However, it was considered that an introductory article covering the 'pre-history' of aviation, i.e. the years up to 1903, would serve as background information and would be of interest to the reader who may not be familiar with the fascinating beginnings of a means of transport, which in less than eighty years has brought mankind from being almost totally earthbound to the age of space travel.

The story of aviation up to the year 1903 will be the subject of the next article in this series.

Midlands Outlook

by ROGER WALLIS

Examining gear box construction

THIS is the first article in what will be a regular series in which I will discuss my own ideas of, and approach to, the Meccano hobby. To introduce the series, I will make a general examination of gearbox construction.

For normal building purposes, I use Washers supplied by Clive Hine of the Midlands Meccano Guild. These Washers are perfectly flat and of the same gauge as Meccano Strips. Utilised under the Nut, in addition to the more usual method of under the Bolt head, damage to parts is minimised particularly where Hexagonal Nuts are employed. I have collected about ten thousand of these Washers purely for this purpose, and I have considered them a 'best buy'.

In Gear trains I use the normal Meccano type Washers, these having a slight 'dish', they provide spacing between the Gear Boss and the side of the bearing, the domed side being in contact with the bearing. Any further spacing required is packed out by the 'Guild' Washers, as their flat surfaces make for more accurate spacing, of particular value in Gear boxes etc. In my 'One-Armed Bandit' for example, over 300 Washers were used for spacing purposes alone.

However, in my view it is no use having accurate spacing for our Gear trains unless a good bearing is provided for the Gear Rods. The ideal bearing for a steel Rod is a brass bush, such as those found in Cranks and Gear Wheels. As these can be expensive a good substitute can be constructed from using at least two steel parts in each bearing. All my bearings utilise a pair of Strips, or a Plate and a Strip, separated by a Washer on each of the fixing Bolts. For extra reliability and strength on some bearings, I have used three, and sometimes four Strips bolted together. The spacing between the parts provides a convenient oil well for lubrication, the oil being retained by capillary action. Obviously care must be taken when lining up the bearings, but if a Drift is used, not an Axle Rod, then no problems should occur in the free-running properties of the journalled Rods.

Now to the Rods themselves. These are inspected before use and if they are badly pitted or tarnished I first of all rub them down with worn emery cloth, and then polish them to a high gloss with a metal polish such as 'Duraglit Silver'. Then the Rods are checked for any distortion by rolling them on a piece of glass and looking for any 'wobble'. The end results are very free running Axle Rods.

As an example of the benefits of using all these hints, a No. 2 Clock built from the now discontinued Meccano No. 2 Clock Kit, in use for several months in my workshop, had it's driving weight reduced from the recommended 4½ lbs to just over 3 lbs.

Progressing from this, we will now examine the actual Gears used in a Gear train. How many of us, I wonder, are guilty of putting Gears away still covered in the oil and grease that lubricated our previous Masterpiece? Whilst the Gear lazes away in it's home it collects dust and dirt which coagulates in the bottom of the Gear teeth. In my toolkit therefore I have a small portable 'Stanley' aluminium vice that will clamp onto a bench/table with the aid of a thumbscrew. Each Gear, before use, is clamped in the vice, (the aluminium jaws do not harm the Gear), and the teeth are gently brushed clean with a wire brush to remove all the dirt and grease.

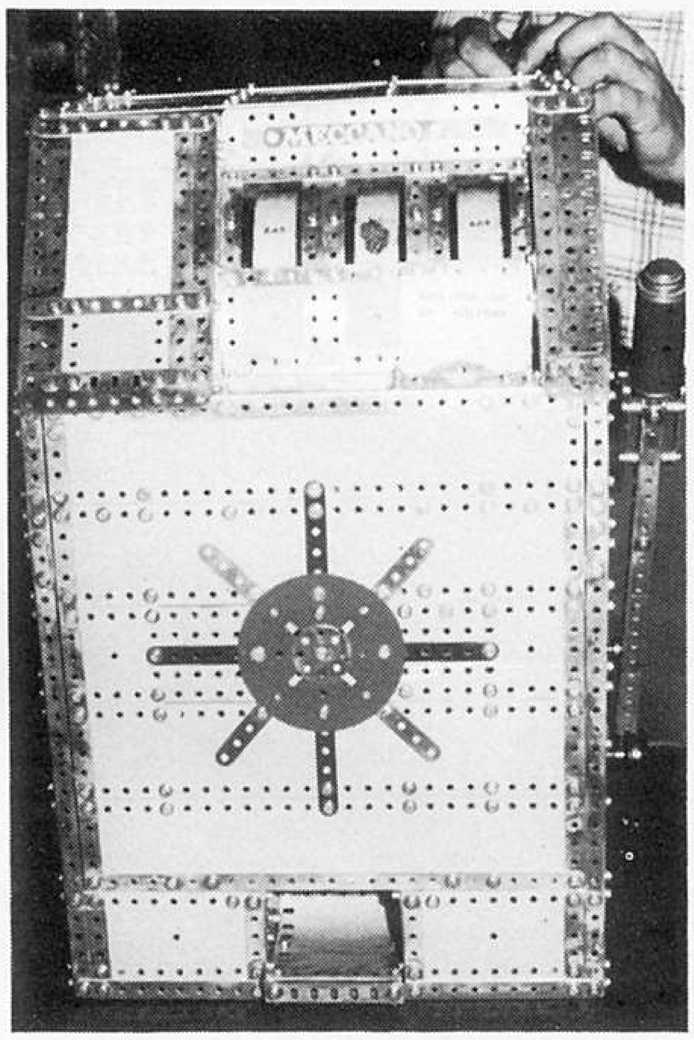
I invariably use two grub screws to affix the larger Gears, so that they run as concentrically as possible. As each shaft is completed it is disconnected from the previous drive shaft and checked for free running. If this is satisfactory the Gears are again brought into mesh, driven by hand and an ear kept open for the sound of the Gears 'graunching' as the teeth bottom in the opposing Gear. If this occurs the Gears are re-checked for concentricity, bearings adjusted where necessary and the Gear train re-tested. If there are still any doubts, the offending Gear is discarded and another one substituted. The large 2½" and 3½" Gears, because of their design, should be checked regularly for warping and tweaked, where necessary, with a pair of long nosed pliers to bring them back into a true running state.

Another failing of the larger Gears concerns the stamping out of the teeth, where one side has a rounded edge and the other a protruding one. Here, a small file, wrapped in emery cloth, can be used to gently smooth the protrusions away.

When using pin-point Axles and their associated bolts I have found that bottoming of the Gears occurs frequently, due to the Pivot Bolts being able to move a considerable distance in the standard Meccano hole. Consequently, as the Gear Train is built up two aspects have to be monitored, and the first of these concerns the tightness of the bearing. If too tight the Axle will bind whilst if too loose, one gets a 'sloppy' journal. Secondly, the position of the Pivot Bolts within the holes must allow accurate meshing without bottoming.

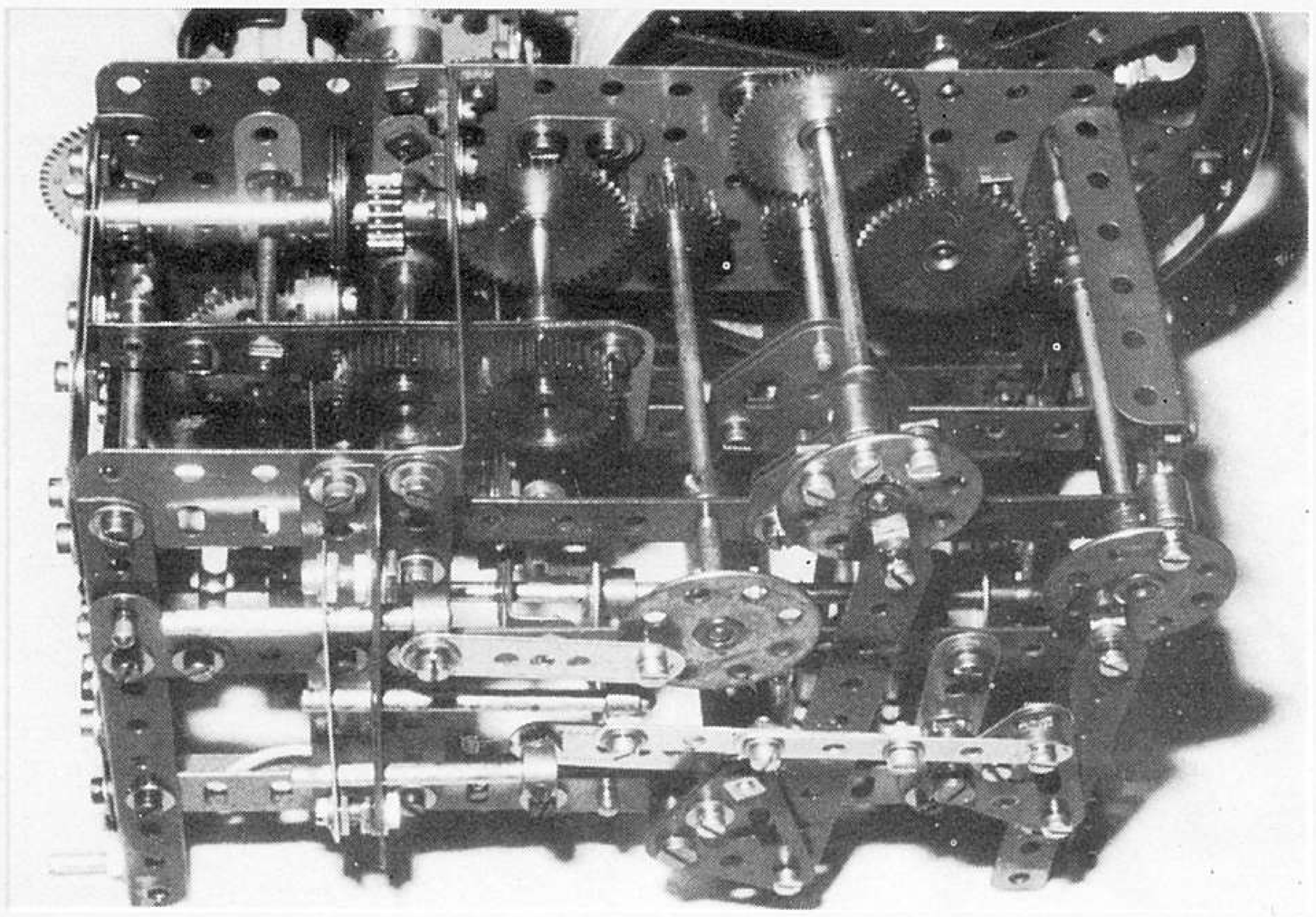
Using the methods outlined above, the author built a small Wall Clock, subsequently published in the 'Midlands Meccano Guild Gazette', that would run for 24 hours on a 4 lb weight with a weight drop of only three feet.

To end this first instalment of 'Midlands Outlook'; having purchased a wire brush and a small vice one can put them to good use by inserting ones large cast Bevel Gears in the vice and giving them a good brush. This will remove all the burrs and imperfections of the cast, enabling the Gear to run, nearly as smoothly as the more expensive Argentine 'cut' Gears.



Operator's-eye view of the Author's Fruit Machine. Using modular construction techniques and employing over 300 washers for spacing purposes alone, it reproduced every feature of its prototype.

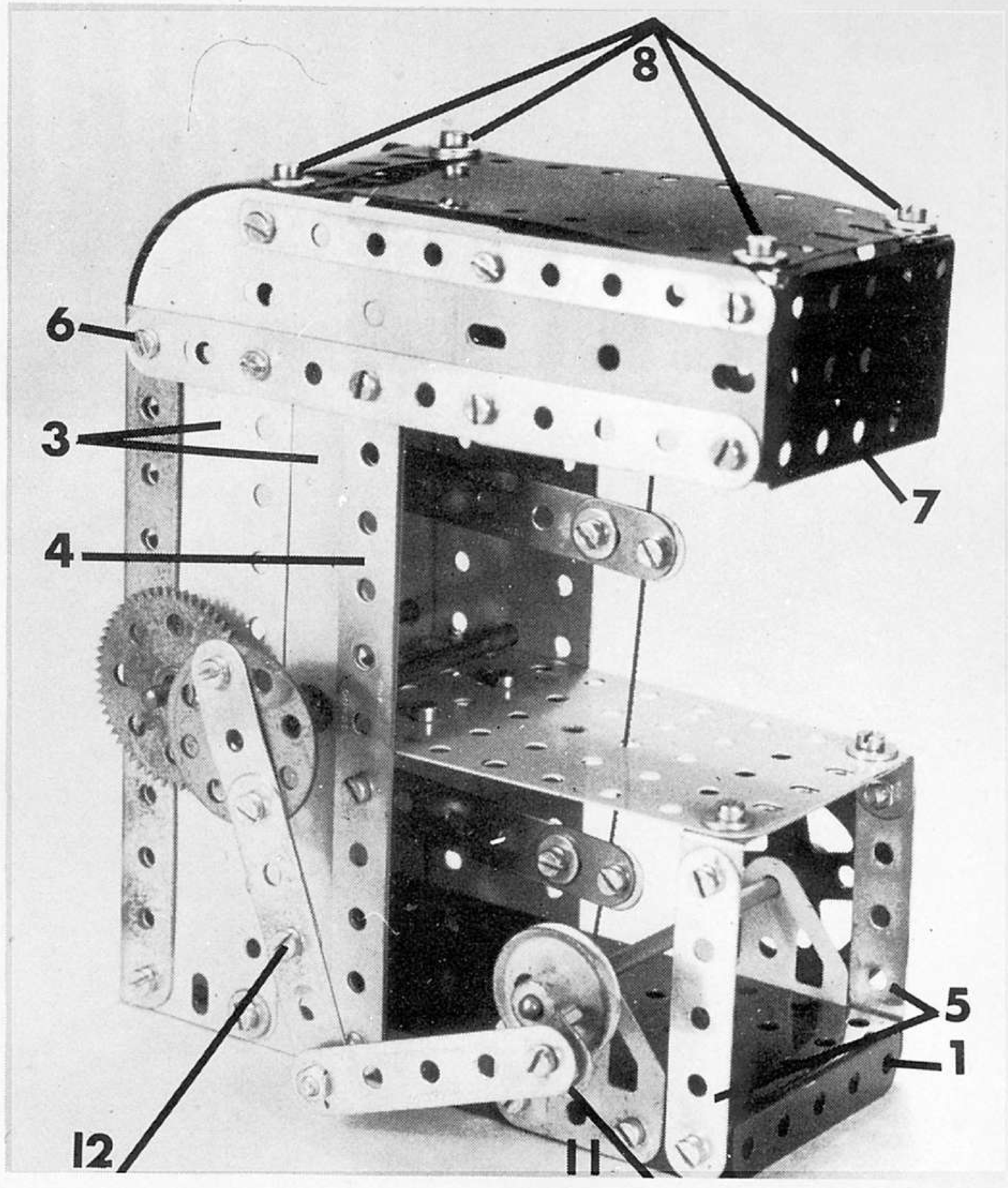
A detail illustration of the business end of the Author's Fruit Machine model, showing good use of 'double' bearings and washers.



TAYLOR'S TEKNIKIT

Taylor's Teknikit is our name for a 'machinery multikit' developed for his own interest by Mr. Harold Taylor of Huddersfield. From a standarised selection of parts, especailly chosen for building interesting machine models, Harold has designed a number of excellent machines which we have been featuring in these pages. The 'Kit' is not commercially available, of course, but we give a list of its contents below for those who wish to collect the parts in order to build the models. Already we have featured a Bench Drill, a Shaping Machine, Milling Machine, a Lathe; and now we have a

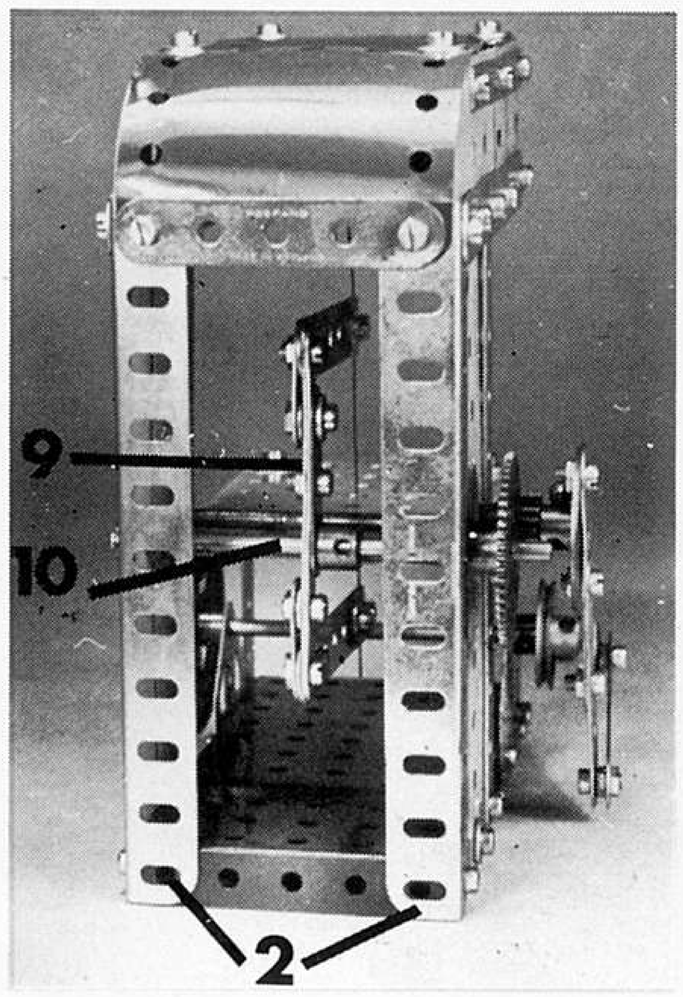
POWER FRETSAW



THE latest in Mr. Harold Taylor's series of models reproduces a Power Fretsaw which although simple, does in fact demonstrate the action of the prototype in a realistic manner.

Construction of the model is commenced by bolting to each side of a 5½" x 2½" Flanged Plate 1, a 5½" Angle Girder 2; two 5½" x 1½" Flexible Plates 3; a 5½" Strip 4 and a 2½" Strip 5. The 5½" Angle Girders 2 and the 5½" Strips 4 are connected at the top ends by two further 5½" Stips 6, which extend over the 5½" x 2½" Flanged Plate 1. These 5½" Strips 6 are extended upwards on each side by two 2½" x 1½" Flexible Plates and a Semi-Circular Plate, as shown in the photograph. The top edge of these two Flexible Plates and Semi-Circular Plate is braced by a 4½" Narrow Strip, again on each side. A 2½" x 1½" Flanged Plate 7 connects the forward ends as shown. The top is filled in by 4½" x 2½" and 2½" x 2½" Plastic Flexible Plates secured by four Angle Brackets 8 and the ends of Angle Girders 2, braced at this point by a 2½" Strip.

The work bench consists of a 4½" x 2½" Flat Plate secured by means of two 2½" x ½" Double Angle Strips to the 2½" Strips 5 and 5½" Strips 4. The frame for the saw consists of two 3½" Strips connected at the rear by two overlaid 3" Narrow Strips 9, braced by two 1" Corner Brackets. Once the frame is assembled it can be fixed to a 3½" Axle Rod 10 by means of a Crank. This Axle Rod is then secured in place by means of a Collar and a 57 Tooth Gear, and journalled in the central holes of the rear two 5½" x 1½" Flexible Plates 3.



A 3½" Axle Rod carrying a 2" Pulley, a Collar for spacing purposes and a 1" Pulley is supported in the apex holes of two Flat Trunnions affixed to side flanges to Flanged Plate 1. The 1" Pulley carries an Angle Bracket 11 held firmly by a Nut on a Bolt shank screwed into one of the transverse bores. This forms a crank, to which a 2½" Strip is lock-nutted, enabling it to rotate. The other end of this 2½" Strip is again lock-nutted, this time to a built-up Strip 12 consisting of two 2½" Strips overlapped three holes.

The other end of this built-up Strip 12 is bolted to a Bush Wheel fixed to a 4" Axle Rod. This Axle Rod also carries an ½" Pinion, engaging the 57 tooth Gear on Axle Rod 10, and a collar to secure it in place in the middle holes of the two forward 5½" x 1½" Flexible Plates.

The model is completed by the inclusion of a thin Fretsaw blade, gripped in the ends of the saw frame by means of two Fishplates. If no Fretsaw blade is to hand, a piece of cord will suffice to effect a dummy representation of the blade.

PARTS REQUIRED

4	of No. 2	2	of No. 48a
2	of No. 3	1	of No. 51
6	of No. 5	1	of No. 52
2	of No. 9	1	of No. 53a
2	of No. 10	4	of No. 59
5	of No. 12	1	of No. 62
1	of No. 15b	2	of No. 126a
2	of No. 16	2	of No. 133a
1	of No. 20a	4	of No. 188
1	of No. 22	4	of No. 189
1	of No. 24	1	of No. 194a
1	of No. 26	1	of No. 194c
1	of No. 27a	2	of No. 214
57	of No. 37b	2	of No. 235a
58	of No. 37c	2	of No. 235d
11	of No. 38		

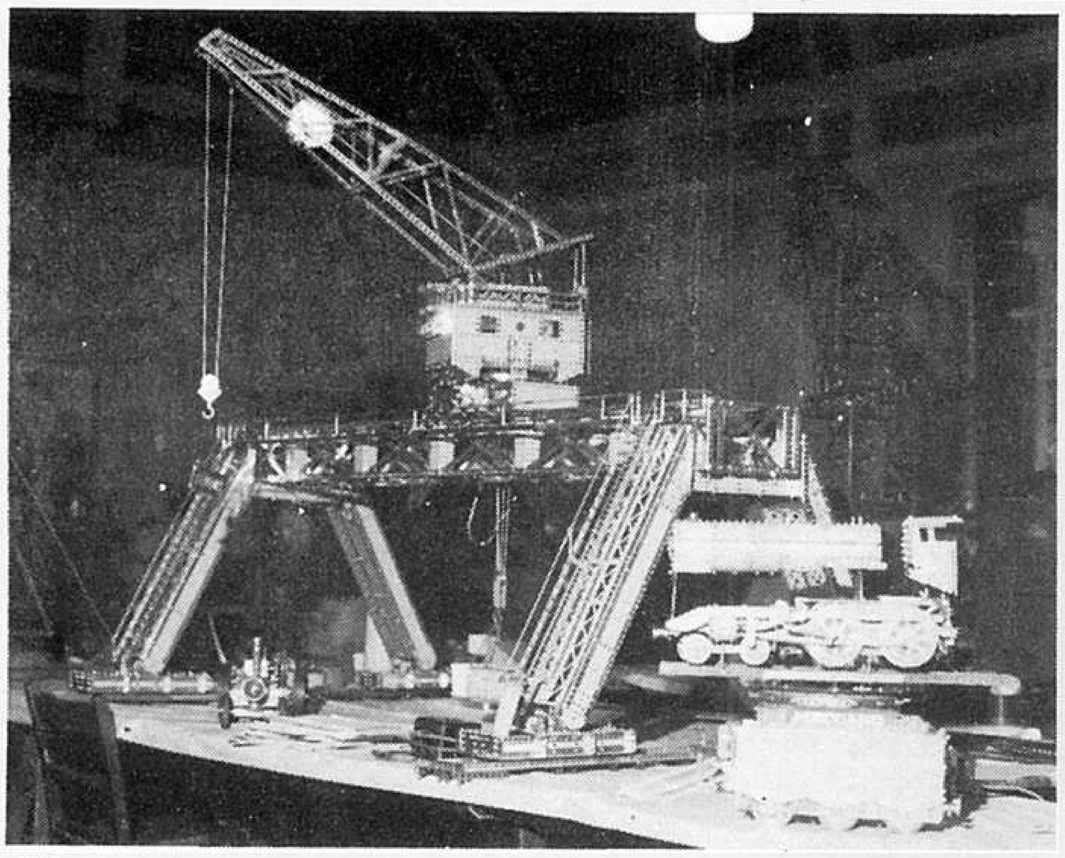
TAYLOR'S TEKNIKIT CONTENTS LIST

Part No.	Qty	Part No.	Qty
2	4	53a	2
3	2	59	6
5	10	62	1
8a	2	63	1
9	2	63d	1
10	4	64	1
11	2	80c	1
12	8	108	2
12b	2	110	1
15b	1	111	2
16	3	111a	2
17	2	111c	6
18a	2	115	1
20a	2	125	2
22	3	126	2
22a	2	126a	2
24	2	133a	2
26	2	160	1
27a	1	188	4
27f	2	189	4
32	1	190	2
35	2	194a	2
37b	64	194c	2
37c	64	214	2
38	30	230	1
43	1	231	1
48a	6	235a	2
51	1	235d	2
52	1	235g (1½" N.S.)	2

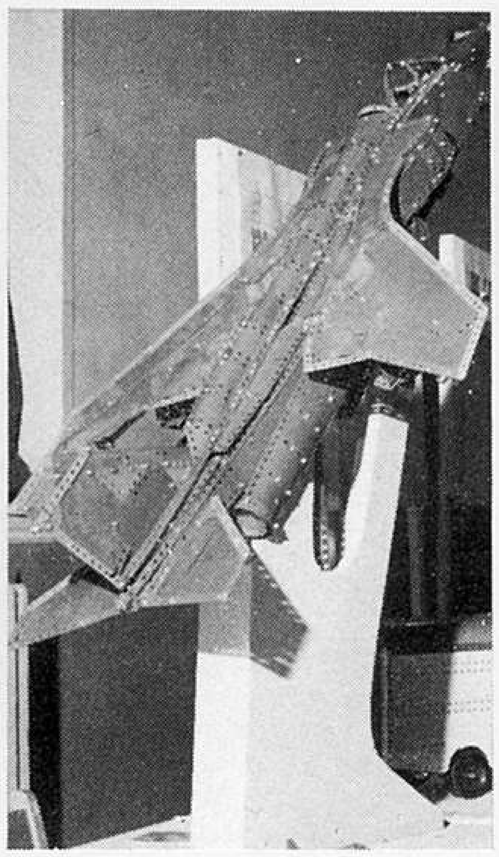
SCENE AT

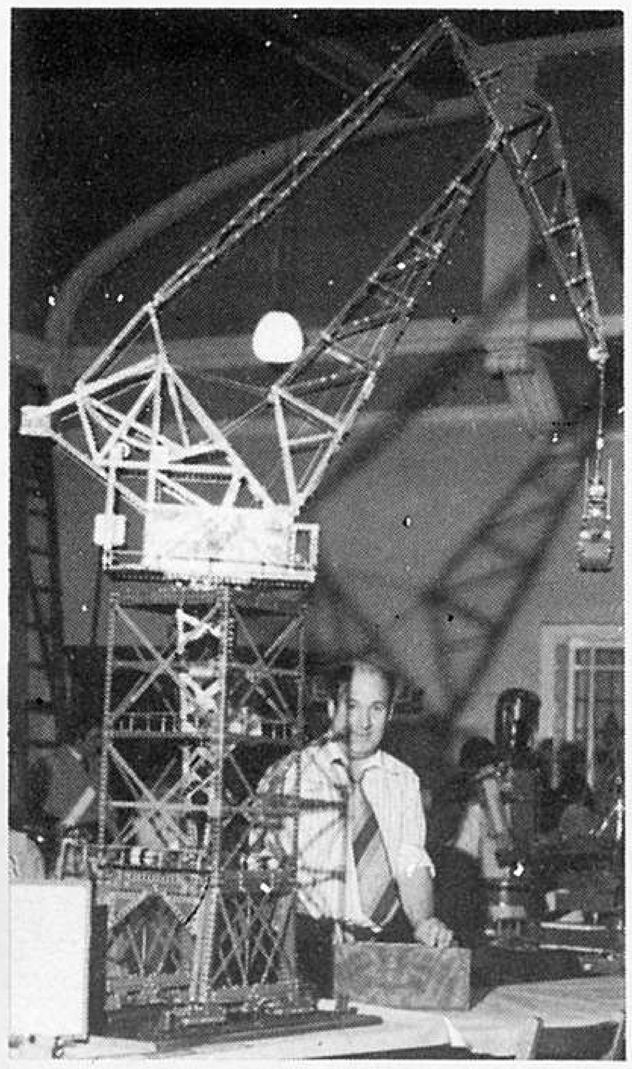
DARLINGTON

A selection of models from the many superb Meccano constructions on view at the North Eastern Meccano Society's 3rd Annual Meccano Exhibition held on the 18th November 1978.



Mike Cotterill's stupendous Dockyard Gantry Crane displayed his usual high standard of modelling skill. Standing nearly six feet high and drawing power from seven motors, it took first prize in the adults' section of the model building competition.

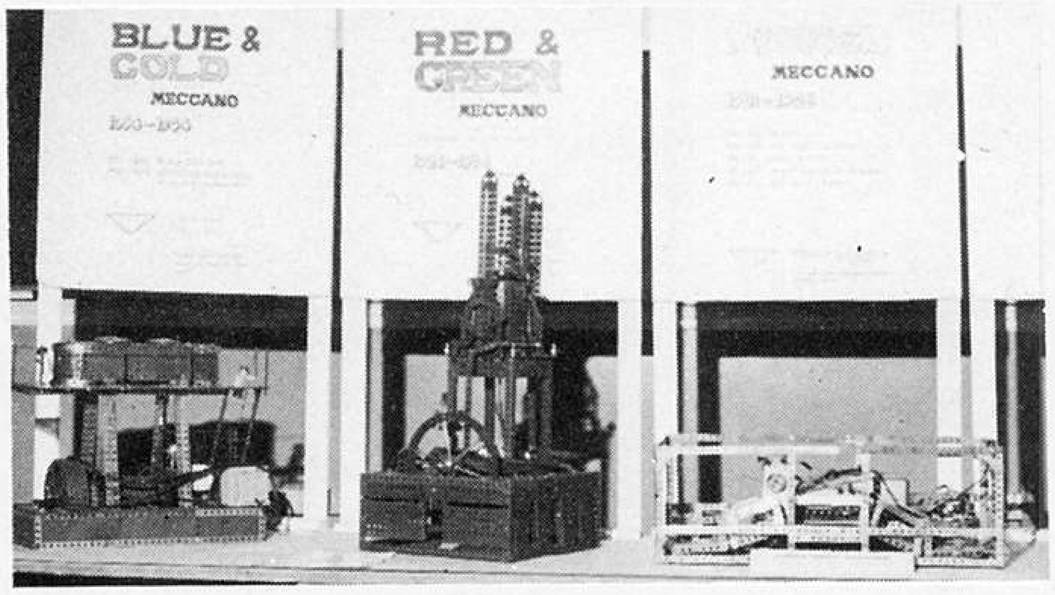




ABOVE: Yorkshire enthusiast Alan Scargill presented another of the show's many large cranes, many interesting features were incorporated and its size can be judged by comparison with Alan, standing nearly by.

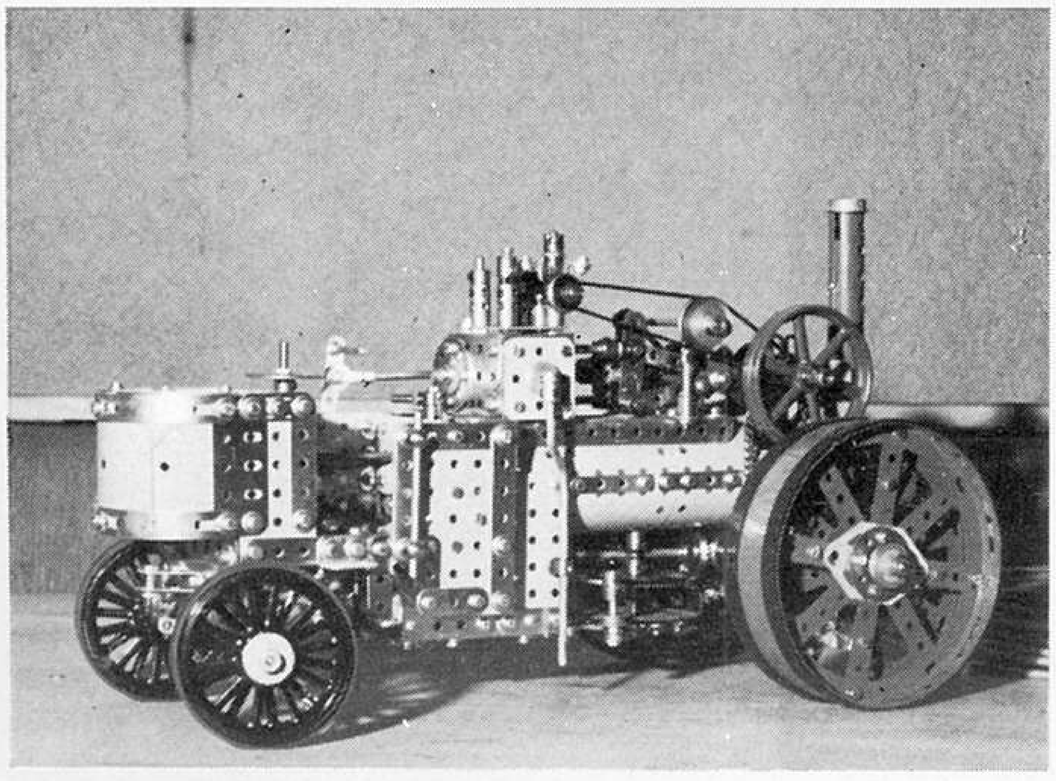
A FIVE feet long Jaguar Aircaft with retracting undercarriage and closing doors. Raked at a power climb angle, it is another example of NEMS secretary Frank Beadle's flair for aircraft modelling.

Only two Power Drive Units were required to motivate this Super Double Fairground Ride. Over six feet in diameter, it is a tribute to the high skill of NEMS member Ellis Dudley.

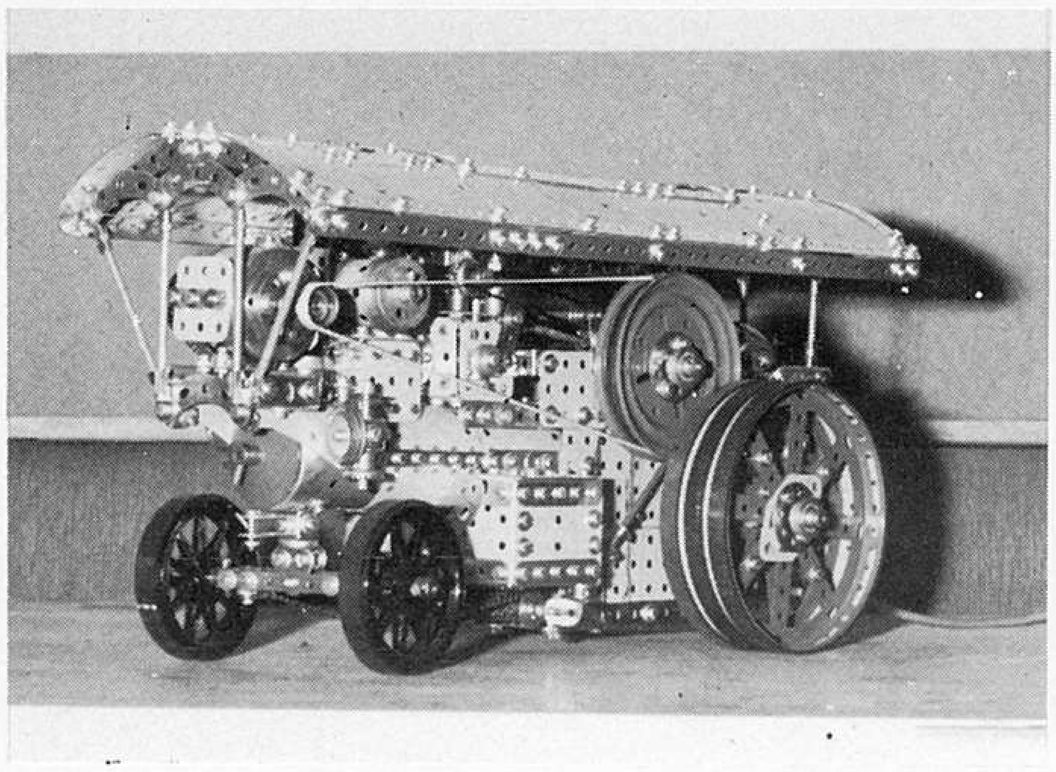


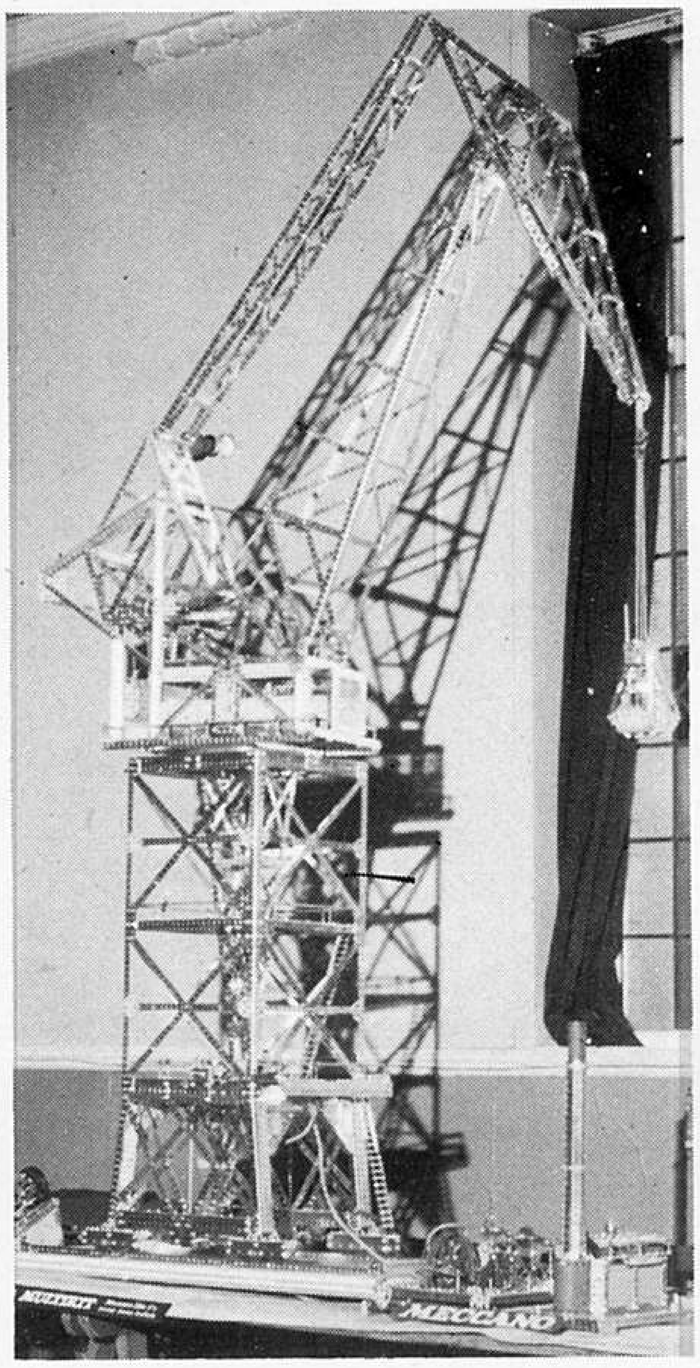
PART of Frank Beadle's historic display, showing a Marine Engine in blue-gold colours; a Murdoch-Aitken engine in 1930's dark red and green; and a Cakewalk in rare, early nickel-plated parts.

Below: A finely detailed model of an unusual subject, a Suffolk Punch Agricultural Engine built by Barry Wilkinson of the NEMS.

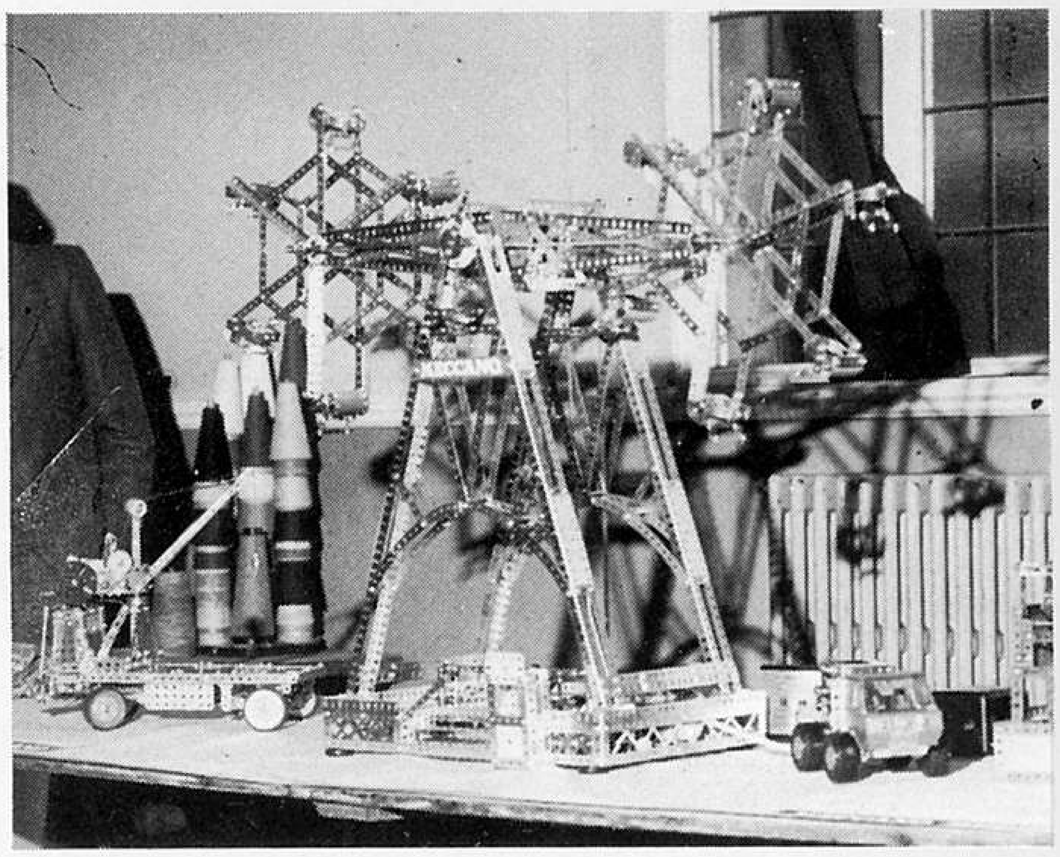


Below: A Showman's Traction Engine by Barry Wilkinson. Models of this type are immensely popular and this is a particularly fine example with a wealth of authentic detail.



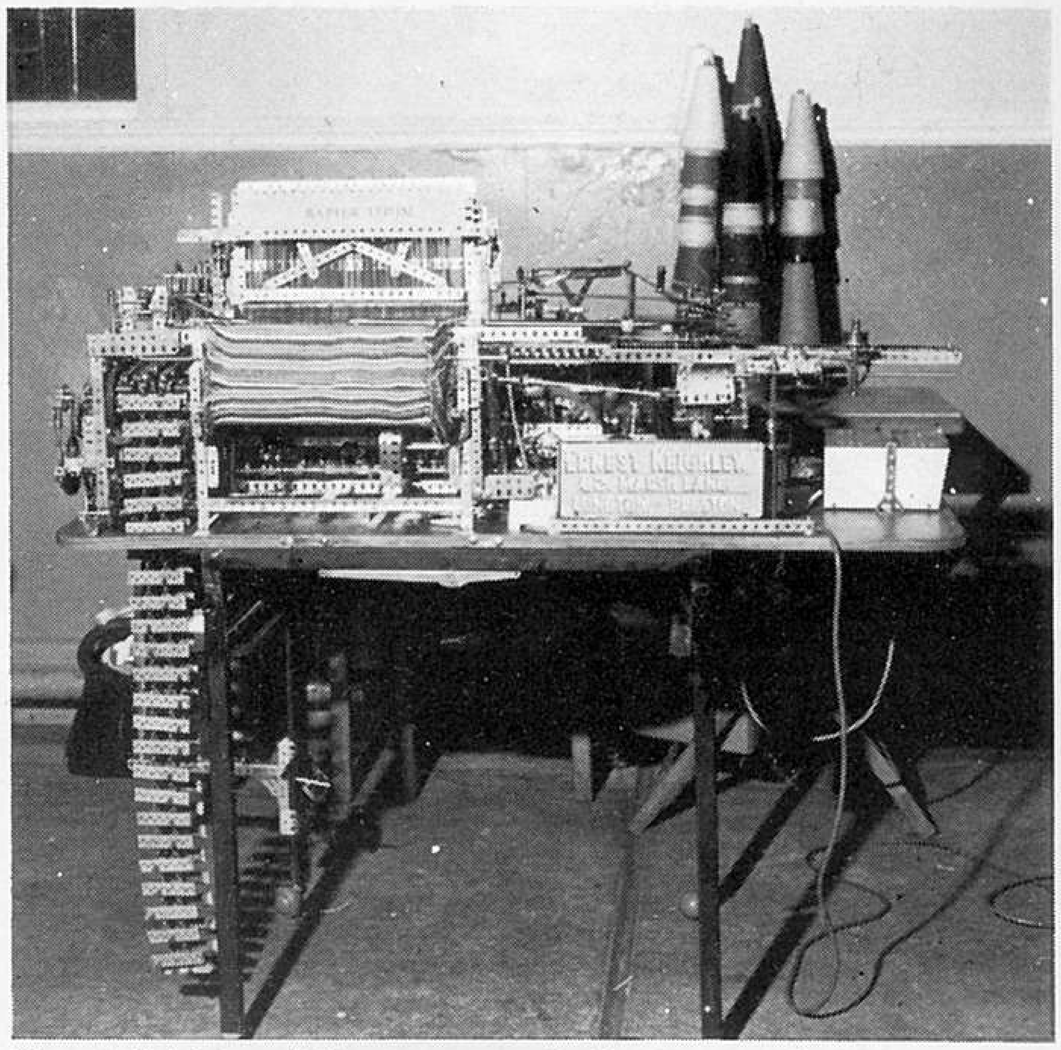


Left: Chris Barron, Chairman of the North Eastern Meccano Society, showed this superb Toplis Level Luffing Crane, over six feet tall. No less than five Power Drive Units are incorporated.

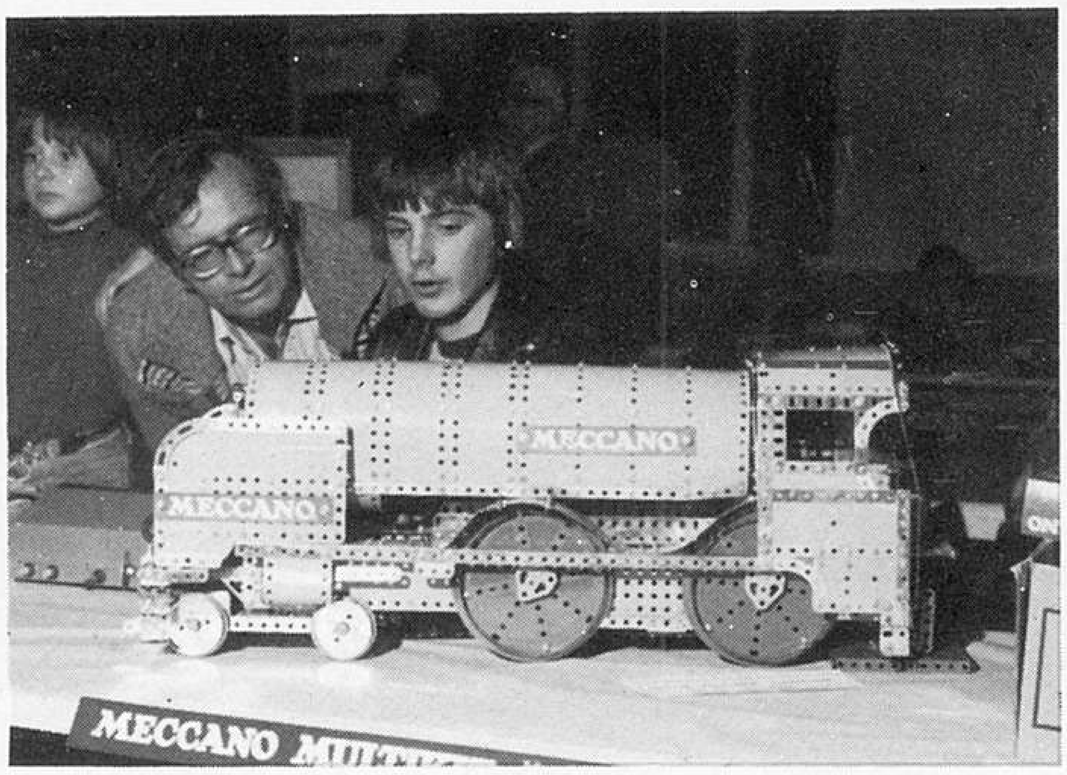


NEMS member Joe Etheridge showed this superb Double Ferris Wheel which operated sequentially, stopping to allow entry to each of the twelve cars. Full illumination completed a fine display model.

Below: Michael Gallagher, (right), explains the finer points of his 4-4-0 locomotive, based on the Set 10 leaflet, to Mike Cotterill.

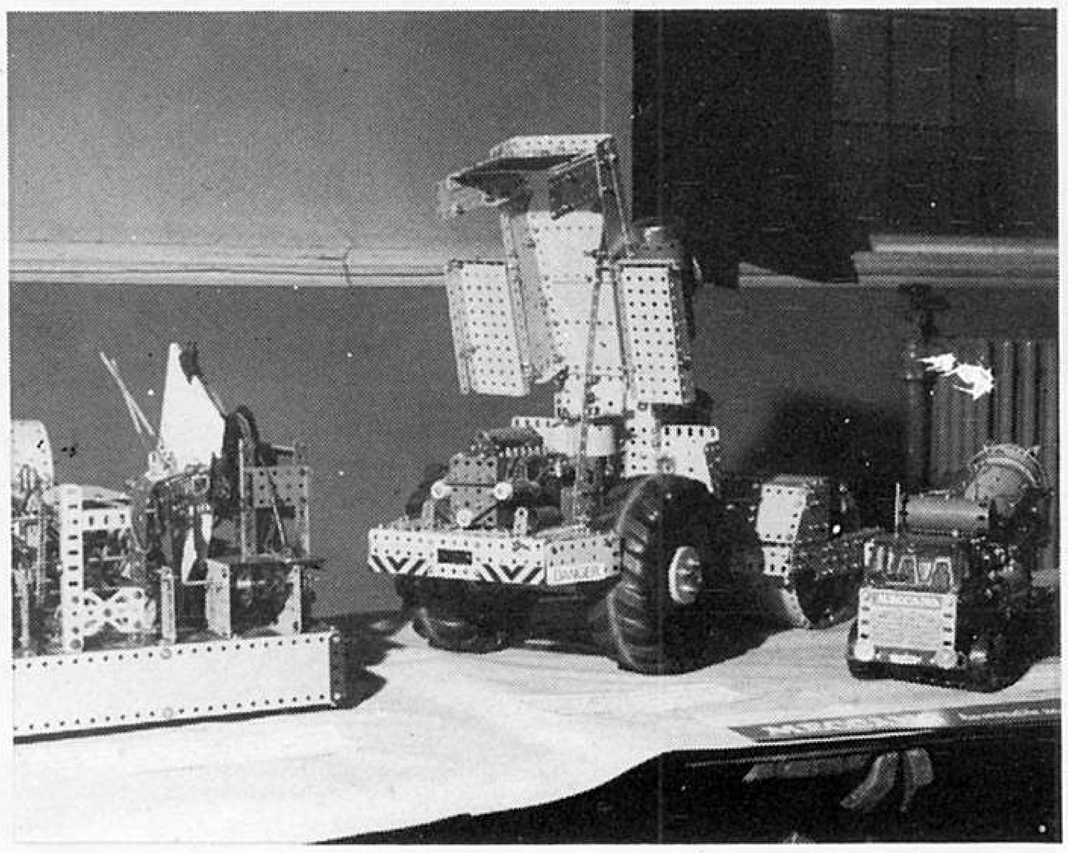


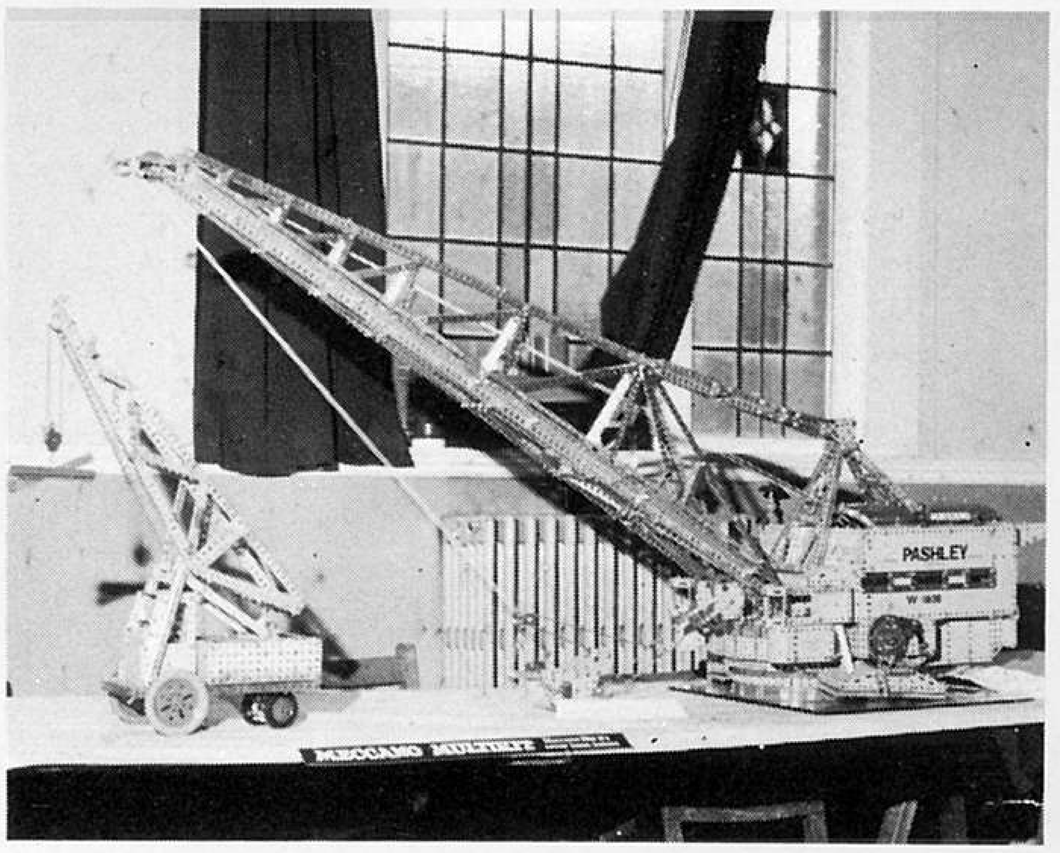
Ernest Keighley of Preston amazed all who watched the fascinating motions of his improved, automatically operating Rapier Loom.

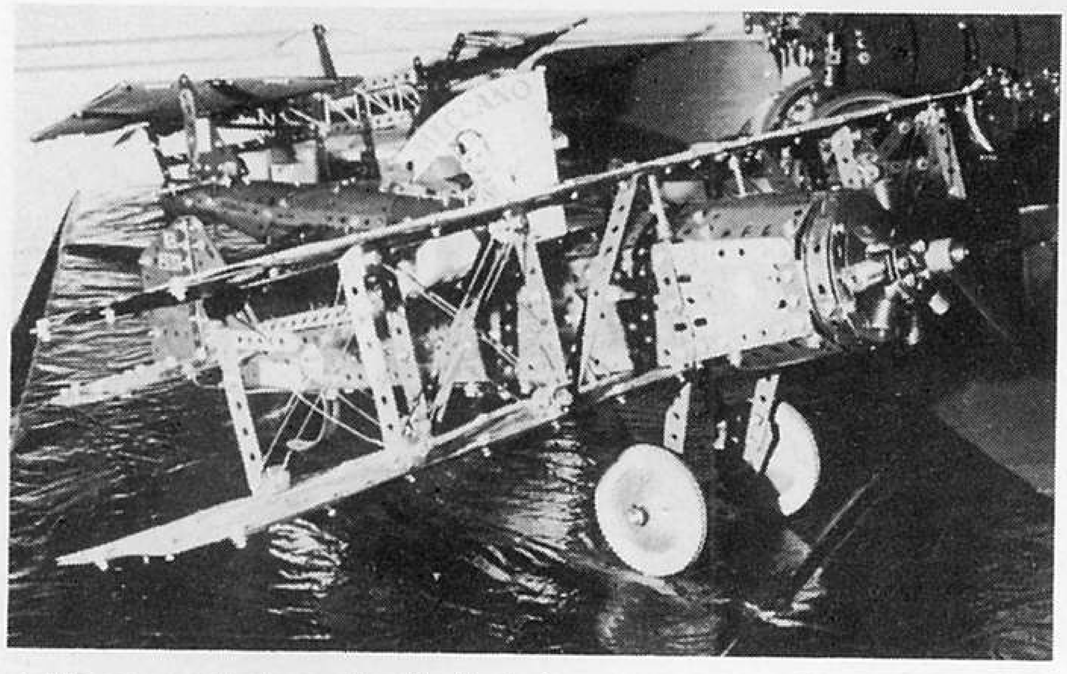


Below: A realistic model of a Dynapac CA-25 Road Roller, shown here alongside other models by David Dalton of the NEMS.

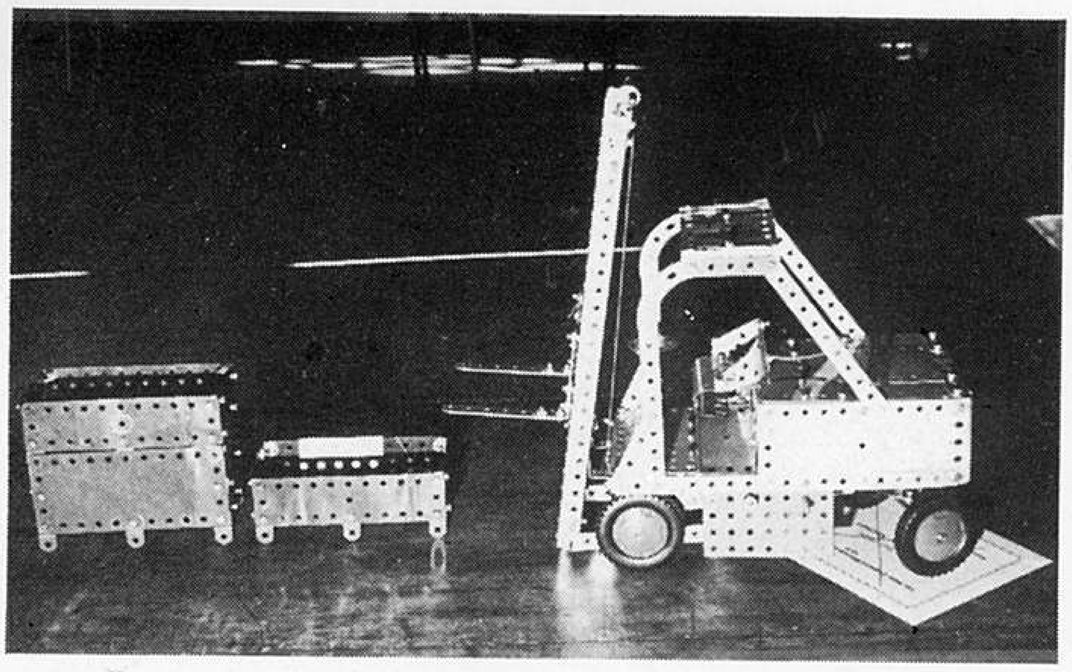
Below: Mike Pashley's impressive Ransomes & Rapier W1800 Walking Dragline, using enormous quantities of Meccano parts to great effect in reproducing every feature of the prototype.







A Meccano collector and enthusiast of many years standing, Lindsay Bond of Stratford built this Boeing 40-A Biplane which was judged 9th in the senior section of the Model-Building Competition.



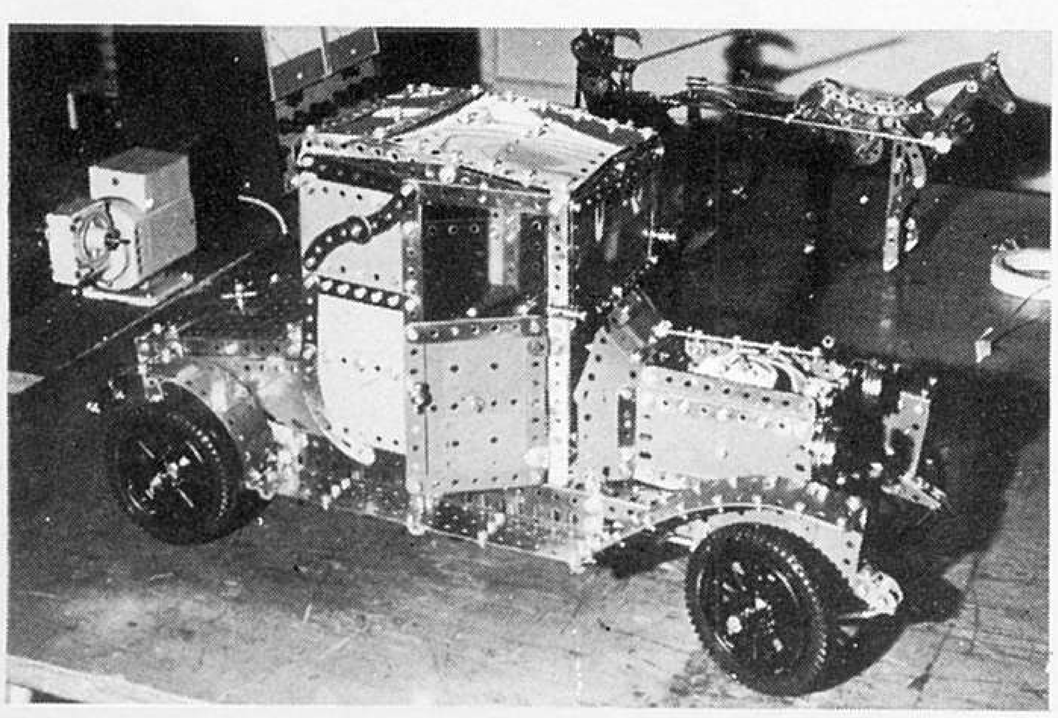
Philip Ngan won first prize in the junior section with this neatly crafted freelance design Fork Lift Truck with stackable containers.

NEW ZEALAND MECCANOMEN'S CONVENTION AND EXHIBITION

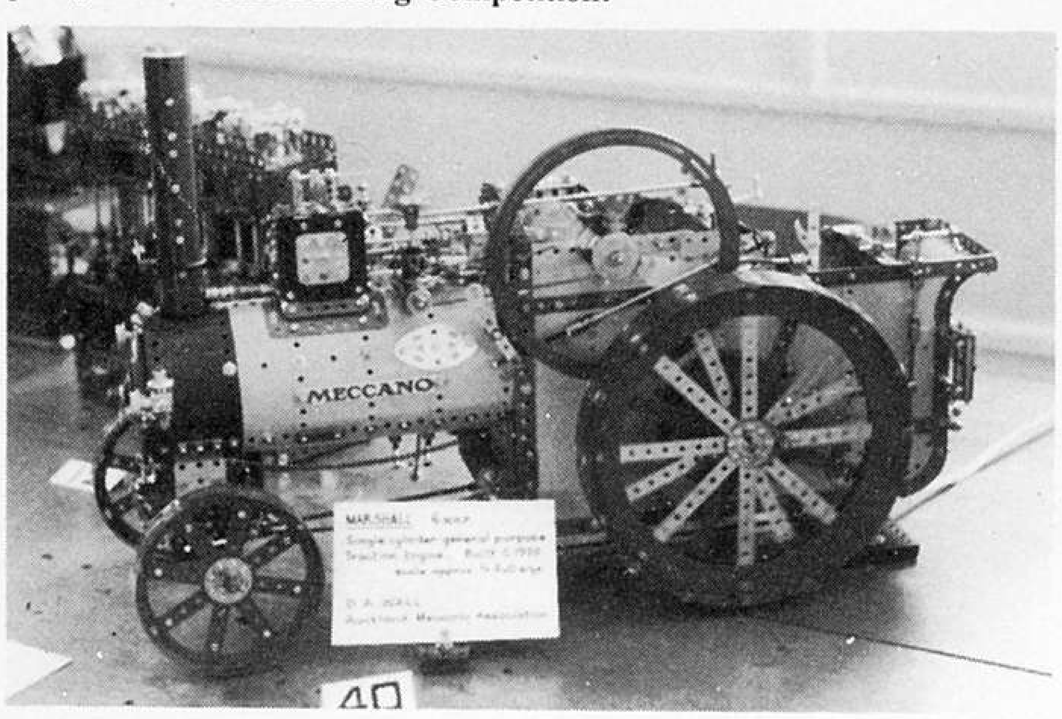
Railway Social Hall, Wellington

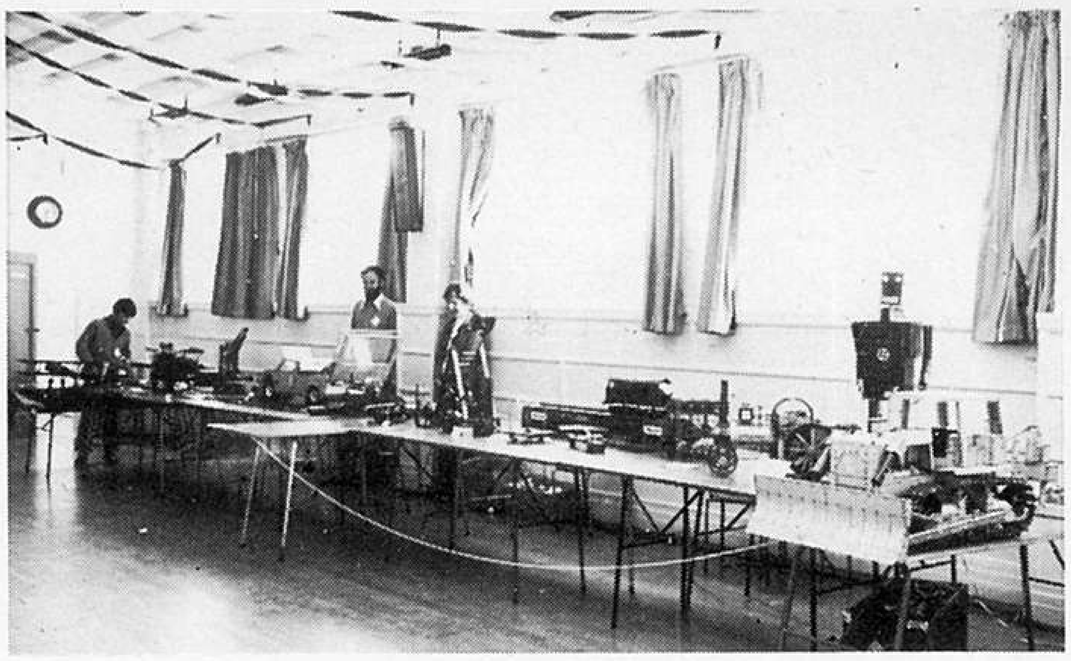
Held on the 24th—27th March 1978, this event may seem a little distant now, but photographs of the many fine models on display did in fact only arrive at the M.M. offices in January 1979. In view of the fact that New Zealand Meccano modellers' work has in the past received comparatively little publicity in the M.M., quite apart from the importance of the Convention itself, it was considered that despite the 'time-lag', M.M. readers might still like to glimpse some of the many fine models that were on show to the public. The next Convention will be held in 1980.

Below: This unusual model of a Vintage Car featured remote-control electrical operation and it delighted onlookers with its performance. Full credit goes to Stan Baker of the Wellington Meccano Club.

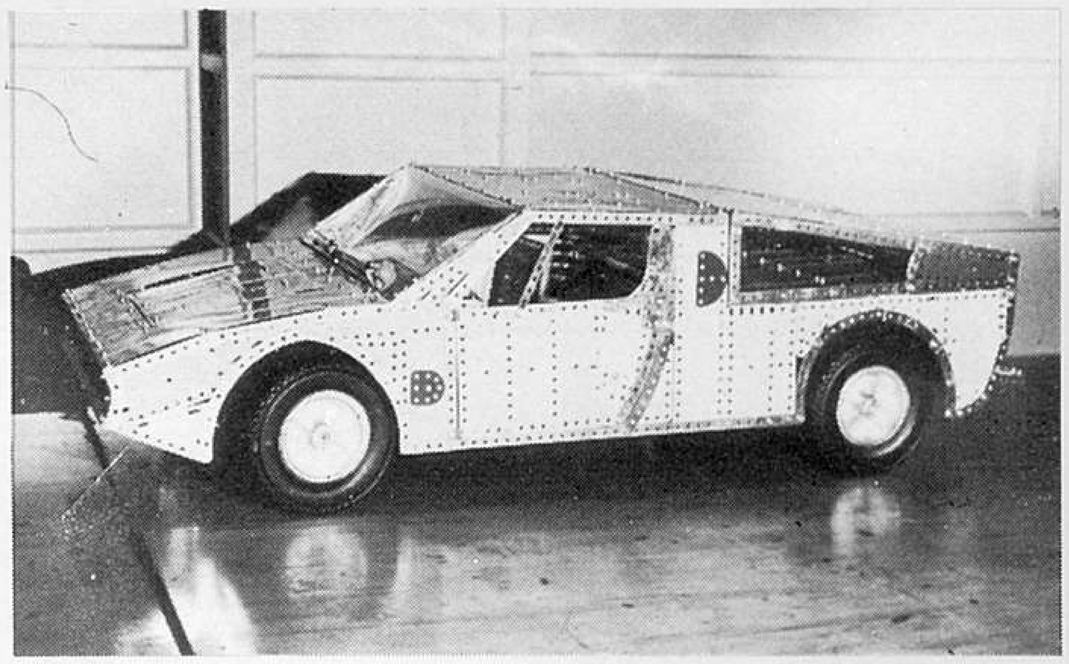


Below: A really beautifully built model of a 1920 Marshall 6 N.H.P. Traction Engine, by David Wall of the Auckland Meccano Association. A fully working model, all the mechanisms operate smoothly. It claimed first prize in the Model Building Competition.

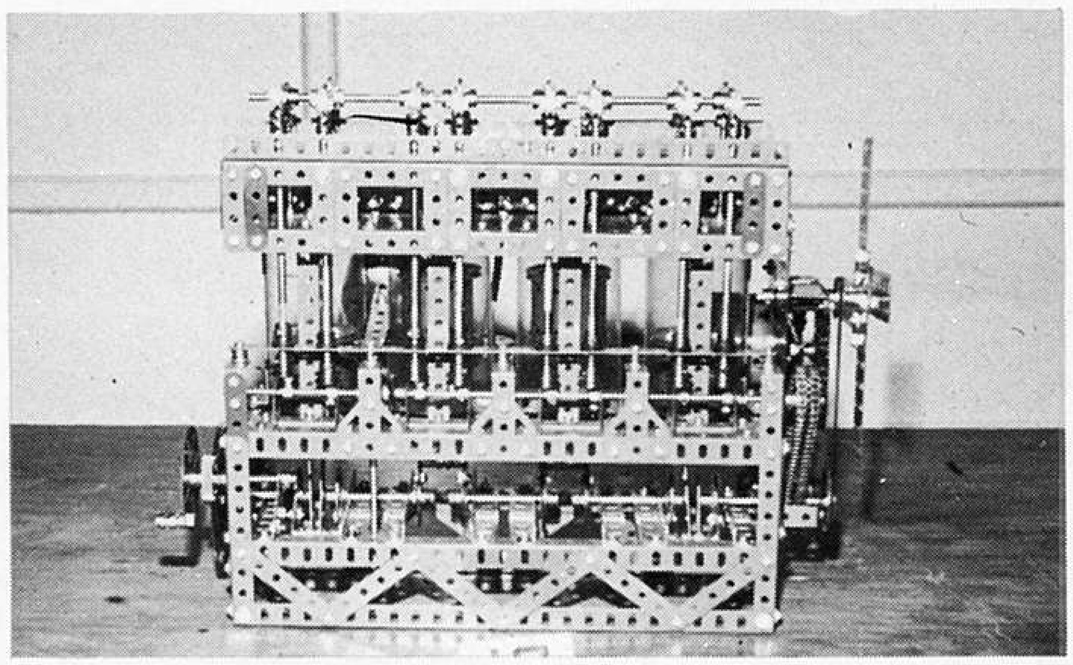




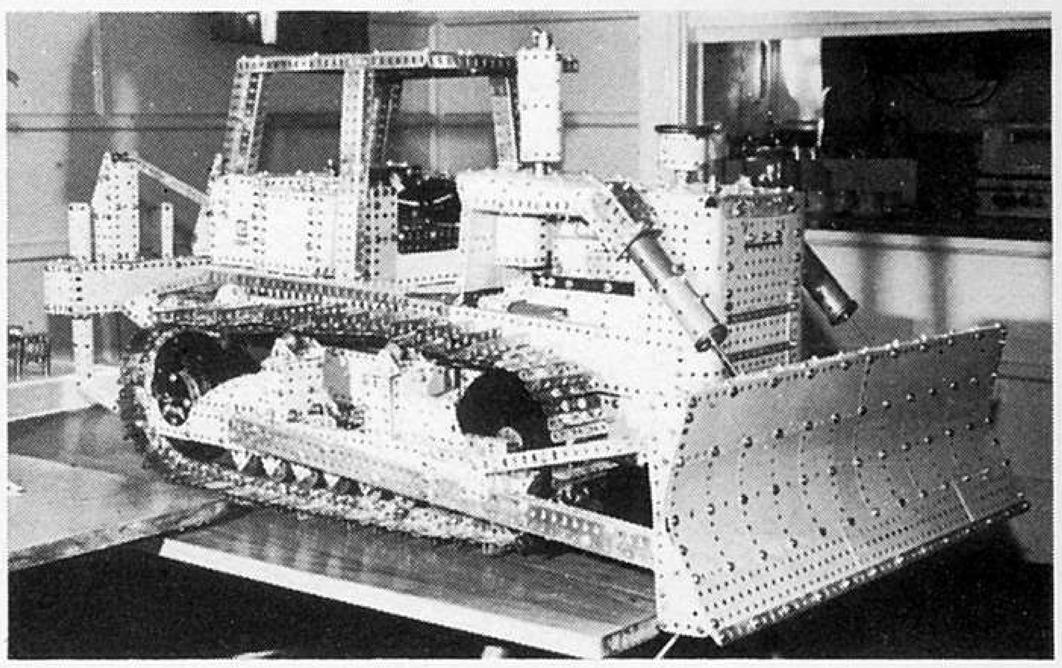
A general view of some of the models on setting-up day.



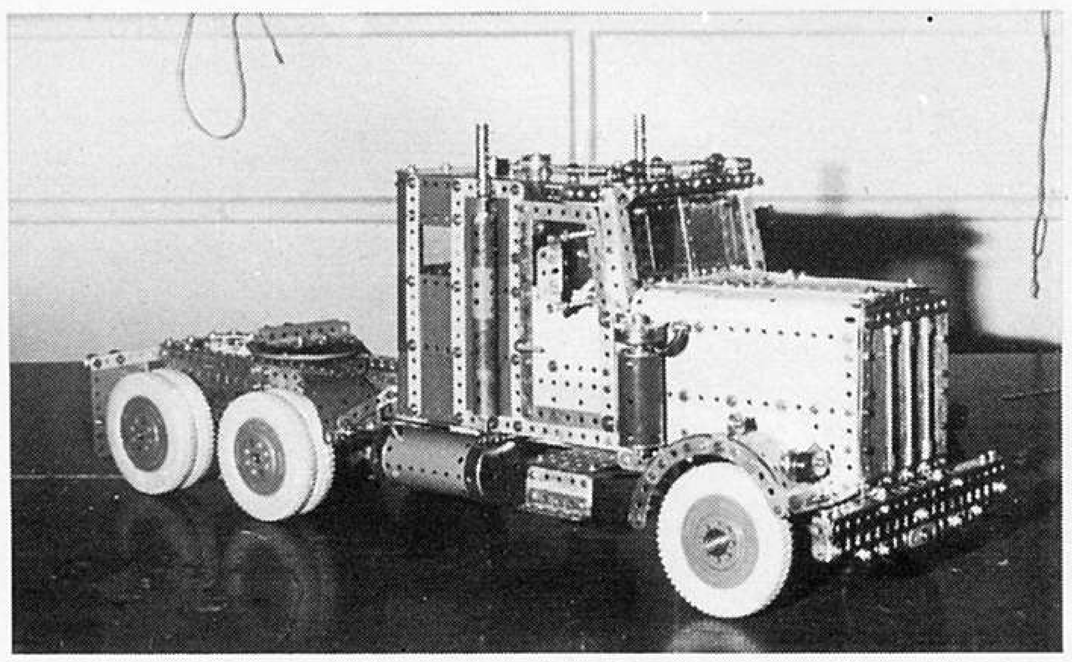
Auckland Meccano Association member Brian Buchanan showed this fully operating version of a Maserati Bora. Detailed features include electric lights, windscreen wipers, direction indicators and even a horn!



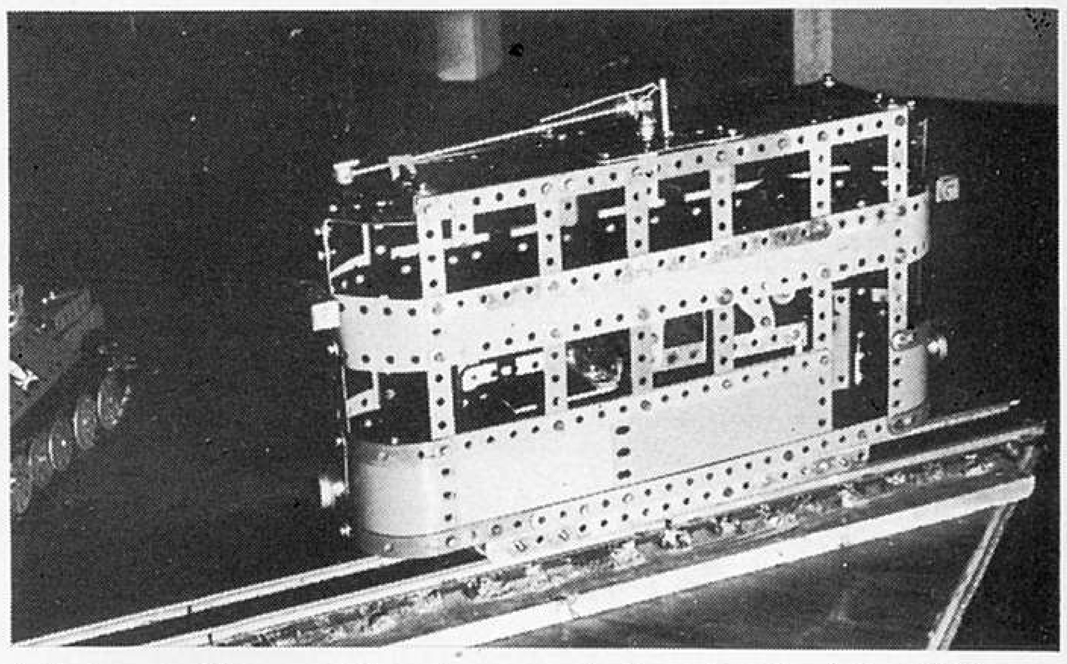
This reproduction of a four cylinder car engine accurately demonstrates the main functions of the Internal Combustion design, and was constructed by John van der Krogt of the Christchurch Meccano Club.



Don Blakeborough of the Wellington Meccano Club showed this massively constructed and superbly finished model of a Caterpillar D9H Bulldozer. Note the rugged tracks and heavy 'dozer blade'.

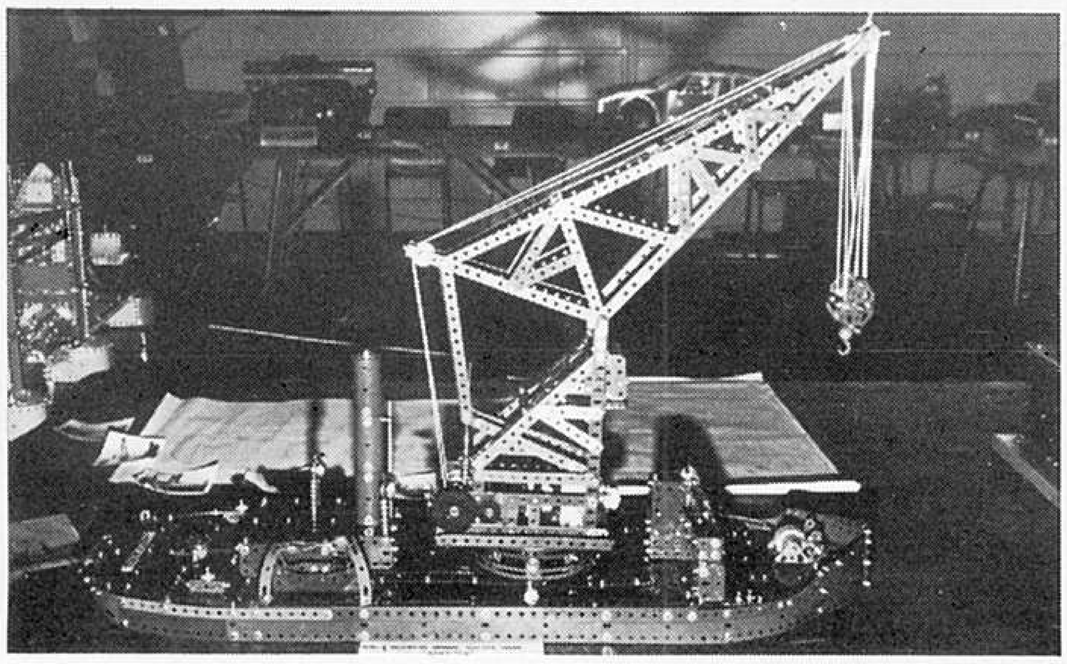


Top-Class modelling skill is clearly evident in this Kenworth Truck Unit by Keith McCallum. The scale proportions and wealth of detail add to the impression of realism.

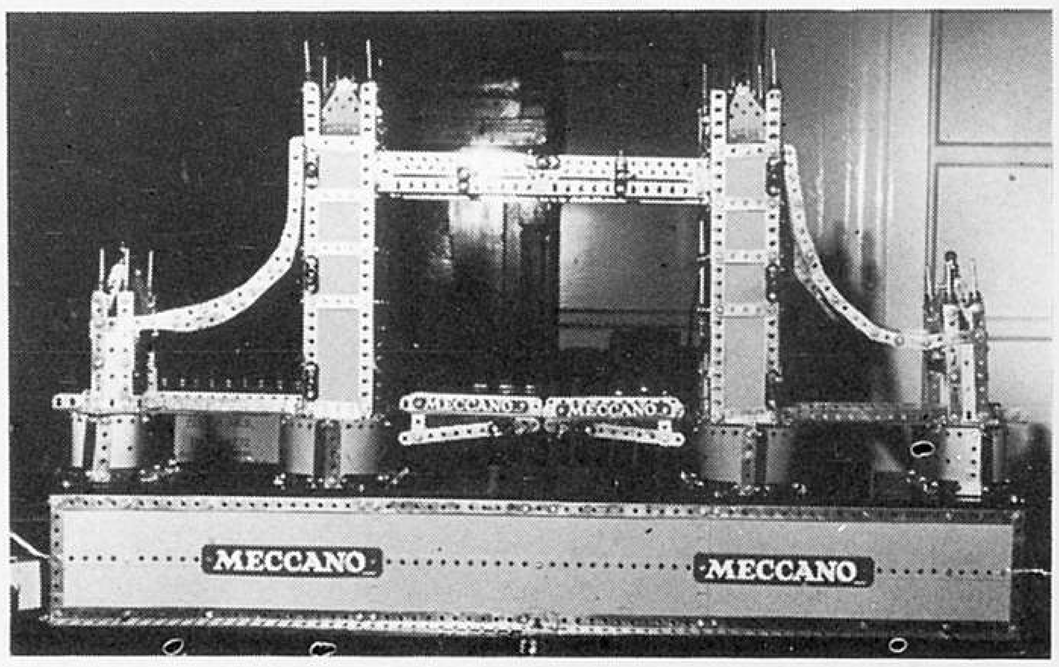


A feature in Meccano Magazine gave Andrew Cathie of the Wellington Meccano Club inspiration for this version of a 'Ding-Dong' Tram, as it's name implies, the model incorporates a realistic-sounding 'bell'.

Below: The Wellington Harbour Board's floating crane 'Hikitia' is seen here, expertly modelled in Meccano using true scale proportions, by Lou Nichols.



Below: Models (N.Z.) Ltd., Auckland, kindly loaned this fine display model of the famous London Tower Bridge. Their involvement also extended to donating the first prize in the senior section and assistance with other aspects of the Convention.



AMONG THE MODEL-BUILDERS

with 'Spanner'

MR Bert Halliday is no stranger to the pages of Meccano Magazine, and his latest contribution concerns the description of two alternative units, usable in conjunction with the Counting Device featured in the April 1978 M.M. These units are of particular value in indicating the number of revolutions of a Meccanograph designing table.

Counting Device Units

'THE Counting Device as orginally described in the April 1978 M.M., has one slight drawback in that it has to be re-set after the completion of a specified number of revs. However, there are two alternative methods of obtaining equally-spaced pointers, or 'trips', so that the following one registers the same number of revs. as its predecessor. To those fortunate enough to possess the now obsolete 56T. Gear Wheel, it is possible to indicate, either, 7; 14; 21; 35; 42 and 49 revs, without re-setting the indicating pointer, or 'trip', each time.

If you should require only, 14; 28 or 42 revs, then to an 8-hole Wheel Disc, bolt two Threaded Bosses by their longitudinal bores, diametrically opposite, and with the transverse bores in line. Into these bores, a Bolt can be screwed as required, to act as a pointer, or 'trip'. Bolt this arrangement to the 56T Gear Wheel; spacing it by Washers for Bolt head clearance, using two more Threaded Bosses as 'nuts', and arranging their transverse bores in line as previously described, and so you have four Threaded Bosses spaced one hole apart, round the Wheel Disc.

You then have four equally-spaced pointers, or 'trips' with the following pointer indicating the same number of revs as its predecessor. One pointer indicates 14 revs., two successive ones, 28 revs., and three, 42 revs. With eight pointers, or 'trips', fitted to the Wheel Disc, each will indicate 7 revs—an arrangement that might be useful to Meccano clock makers, to indicate the passing of a week. The 56T. Gear Wheel will mesh with the Worm at standard spacing, but the 8-hole Wheel Disc must be used for anchoring the pointers, as the Gear Wheel itself was endowed with only two diametrically opposite holes, in the original designing.

To obtain a continuous indication for 20 revs. bolt three Threaded Bosses one hole apart, to a 6-hole Wheel Disc, and bolt this to a 60T. Gear Wheel, in the manner already described in respect of the 56T. ditto. The 60T. Gear Wheel can be arranged to be driven from the Worm, without any alteration to the setting-up of the original mechanism, by setting this Gear Wheel offset to the centre-line of the Worm, and this will be found to work quite efficiently. To Meccano clock makers, a compact striking mechanism is possible, by fitting four pointers, or 'trips' to the Gear Wheel itself; so providing for the four quarters.

With the appropriate number of pointers, or 'trips', fitted to either a 6-hole Wheel Disc, or the Gear Wheel itself, this unit can be made to indicate, either, 10; 15; 20; 30; 40; 45 and 50 intermediate revs.

Finally, as the 60T. Gear Wheel used in this manner, is offset to the Worm's centre-line, it includes the slightly mind-boggling possibility, of arranging no fewer than four such Gear Wheels, so they are driven from a single Worm! And they could all be on separate shafts, to boot!'

MR. Brian W. Smith of Beacon Hill, Surrey, has designed this unusual three speed automatic gearbox, especially suitable for use in Meccano models of Vehicles, various types of small chassis etc. In my experience, gearboxes capable of changing gear automatically are far less common than the standard 'manual' type, as far as Meccano modelling is concerned, and are therefore of potentially greater interest.

MECCANO THREE SPEED 'AUTOMATIC' GEARBOX

THIS gear-box has been designed, (writes Mr. Smith), to work with constant speed electronic motors rather than relying upon centrifugal forces of varying speed input, it is therefore most suitable for use with the currently available 12 volt six gear electric motor.

FRAMEWORK

The simple framwork is made up from two Perforated Strips, (or the Chassis of a vehicle construction) at least 9½" long, connected in a parallel manner by four 3½" x ½" Double Angle Strips at the first, tenth, sixteenth and nineteenth holes. On to the first and third holes of one of the Strips, a Double Bent Strip is bolted on the inside of the frame. A Fishplate in sandwiched between the Double Bent Strip and the frame Strip at the third hole to act as a spacer and thus ensure that the Double Bent Strip is kept in parallel alignment with the frame.

INPUT AND TORQUE SENSING SHAFT

A 19t Pinion and a 50t Contrate Gear are fitted at each end of two Socket Couplings taking great care to line the Grub Screw holes up with the recess in the Socket Coupling, this will allow subsequent oiling, necessary because these assemblies are free to turn on the Axle Rod and carry some significant loads. Two 19t Pinions are connected to a 5" Axle Rod by Pivot Bolts screwed firmly into a Collar, the Pinions being free to rotate on the Pivot Bolts.

The two Socket Coupling assemblies are now placed on the 5" Axle Rod with the Contrates meshing with the foregoing Pinions. Place a Washer at each end of the Rod. Next, fit a Collar on to the forward end of the Rod, placed so that it holds the Socket Coupling assembly Contrate in mesh with the Pinions. The rear Socket Coupling assembly is held in mesh by passing the Axle Rod through the centre hole of crossmember 'B'.

A further Collar is fitted to the front end of the 5" Rod, followed by a Washer and a further 19t Pinion free to turn, another Washer, and the front end of the Rod is inserted through the centre hole of crossmember 'A'.

LAY SHAFT

The lay shaft is a 4" Axle Rod carrying 15t, 19t and 25t Pinions. This is fitted to the third holes from the left of crossmembers 'B' and 'C', the exact positioning of the Pinions is adjusted later. A further 19t Pinion with the bush forward, plus a Washer, are fitted to the Rod forward of crossmember 'B'. The layshaft is retained in position by a Washer and Collar to the rear of crossmember 'C'.

TORQUE TRANSFER SHAFT

This is a 1½" Axle Rod passed through the frame and Double Bent Strip, to the inside end of which are fitted a Washer, a Crank and a 50t Contrate Grear. The crank is fixed so that it holds the 50t Contrate in mesh with the two 19t Pinions at the forward end of the input and torque sensing shaft.

A 2½" Narrow Strip, pivotted through an end hole by a Bolt lock-nutted to the slot of the Crank, has it's other end hole pivotted to an End Bearing, which in turn is fitted to a 2" Axle Rod inserted into the second hole from the right of crossmember 'B'. The other end of the 2" Rod carries a Coupling in transverse position through on of it's end holes and this forms the sliding link to the sliding shaft.

SLIDING SHAFT

This is a 5" Axle Rod, fitted in the following sequence; third hole from right of crossmember 'B', fixed-Collar, Washer, other end of sliding link Coupling, Washer, 60t Gear, 57t Gear, 50t Gear, (bush to rear), 3 spacing Washers, third hole from right of crossmember 'C', Washer, Compression Spring, Washer, Compression Spring, Washer, and 19t Pinion. The position of this 19t Pinion provides adjustment for the gear changes by adding to or reducing, the tension of the Springs.

The position of the Gears, together with the Pinions on the lay shaft, is critical. The principle being that normally third gear is engaged, (25t Pinion and 50t Gear), but by sliding the shaft forward, second gear must just engage third gear disengages, and similarly first gear just prior to second disengagement.

OUTPUT SHAFT

This is a 3" Axle Rod journalled through the centre holes of crossmembers 'C' and 'D' and held in position by Washers and Collars fitted inside the crossmembers. This Axle Rod carries a 3/4" face 19t Pinion, positioned so that it remains in mesh with the 19t Pinion at the end of the sliding shaft regardless of the gear ratio selected. At the rear end a suitable power take-off, i.e. a Universal Coupling, is provided.

OPERATION

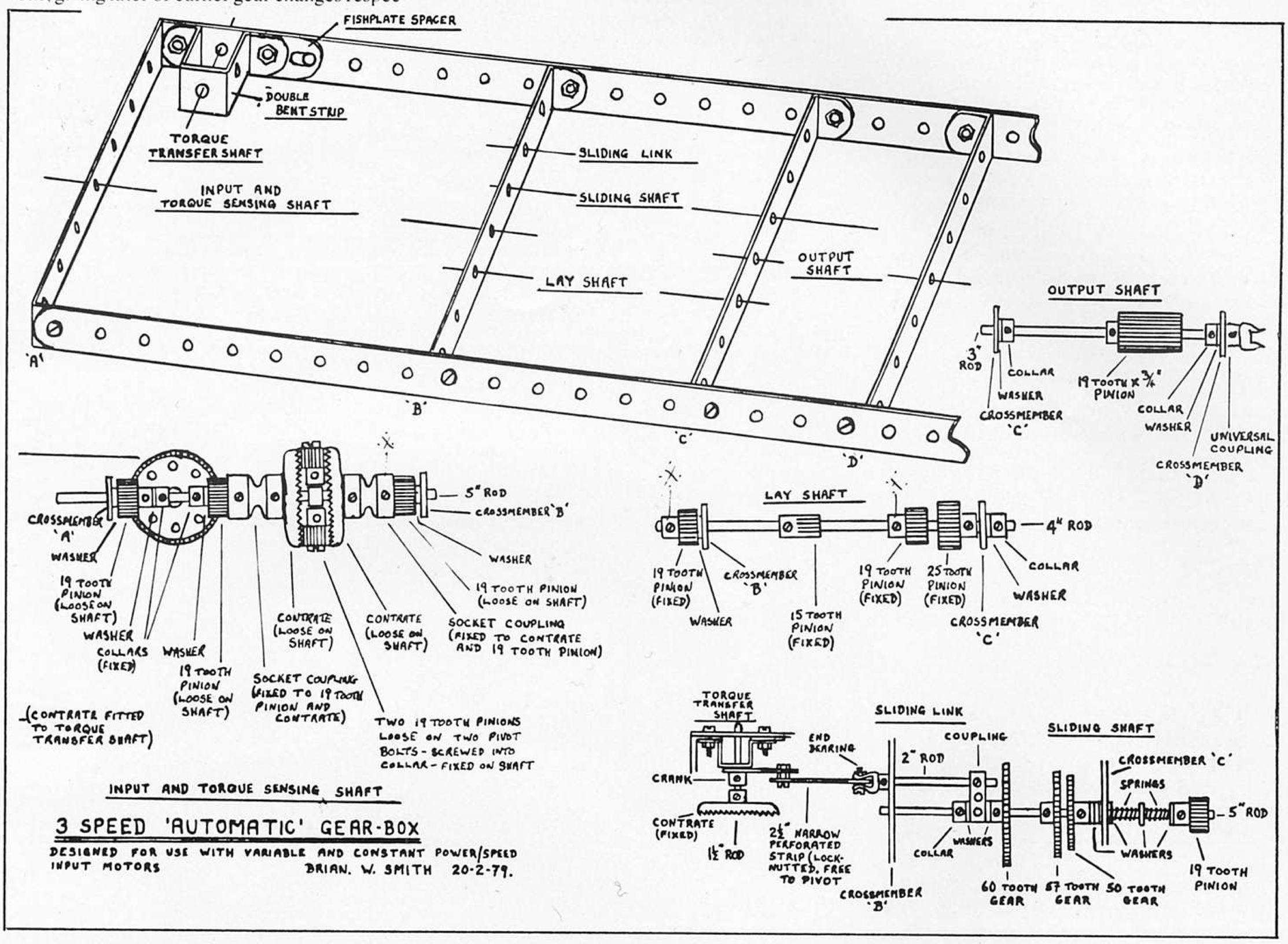
When power is applied through the input shaft, the transverse 19t Pinions on the Pivot Bolts transfer the energy to both 50t Contrates equally. However, the forward Contrate assembly is not free to rotate, being held in position by the tension of the Compression Springs via the sliding shaft and the torque transfer shaft, thus all the energy is transmitted to the rearward Contrate assembly and from there through the lay shaft, sliding shaft and finally the output shaft.

However, if the output shaft experiences any resistance, i.e. the vehicle encounters an upward slope, some of the input shaft energy is diverted to the forward Contrate assembly and thus to the torque transfer shaft which operates by turning and pulling the sliding link forward. This engages the next gear in line, and the next, until the spring tension equals the resistance being experienced by the output shaft. As load on the output shaft decreases the tension of the Compression Springs will return the sliding shaft to a higher gear ratio.

Several adjustments are available apart from

spring tension. These are; the position of the lock-nutted Bolt on the Crank slot, the substitution of the Crank by a Double Arm Crank, this will give earlier gear changes. The two 19t Pinions on the forward end of the input shaft can be replaced by either larger or smaller Pinions, giving later or earlier gear changes respectively. The Compression Springs can be added to, and the power take off can be geared. Any of these modifications or combinations of them will enable the basic design to be satisfactoriy installed to suit most models, particularly where power rather than speed is required'.

To complete these notes on constructing the gearbox, Mr. Smith points out that all Grub Scews marked 'X' in his diagram need to be flush with their bosses and not protruding. The Meccano 7/64th' Grub Screw Part 69c will be found suitable for this purpose.



BENNETT MECHANISM, OR SKEW ISOGRAM

'A mechanism for which no application can be found'. That is the astounding claim made by Steve Tonkin of Bristol, in referring to his model of Bennett's Mechanism. Can an application be found? Construct it for yourself and see! The description below has been supplied by Mr. Tonkin, with photographs kindly supplied by Alan Partridge.

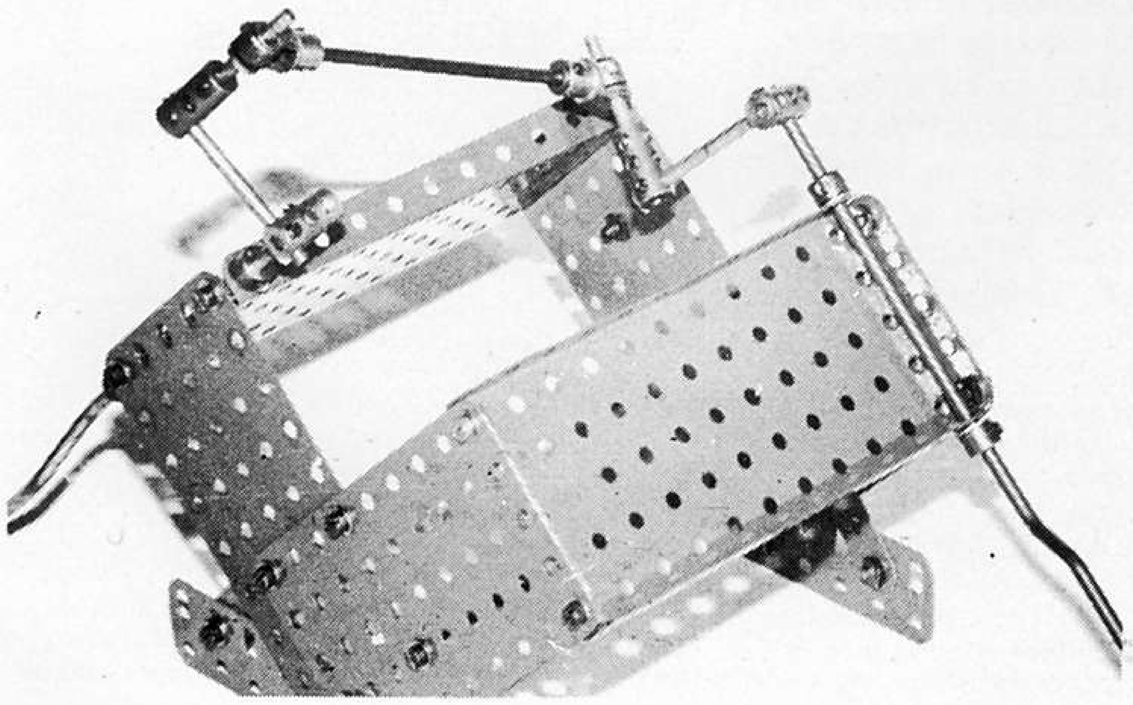
'When I was a schoolboy, more years ago than I care to remember, we had a lecture one evening on 'three-dimensional mechanisms'. Very intrigued by one item described I afterwards made up what I thought it was from Meccano, and showed it to the lecturer. He pointed out that I had got it all wrong, and mutilated the parts with a pair of pliers, after which it worked very smoothly indeed. The experience was a little traumatic but the mechanism was imprinted on my memory and I resolved to make use of it in later life if I could.

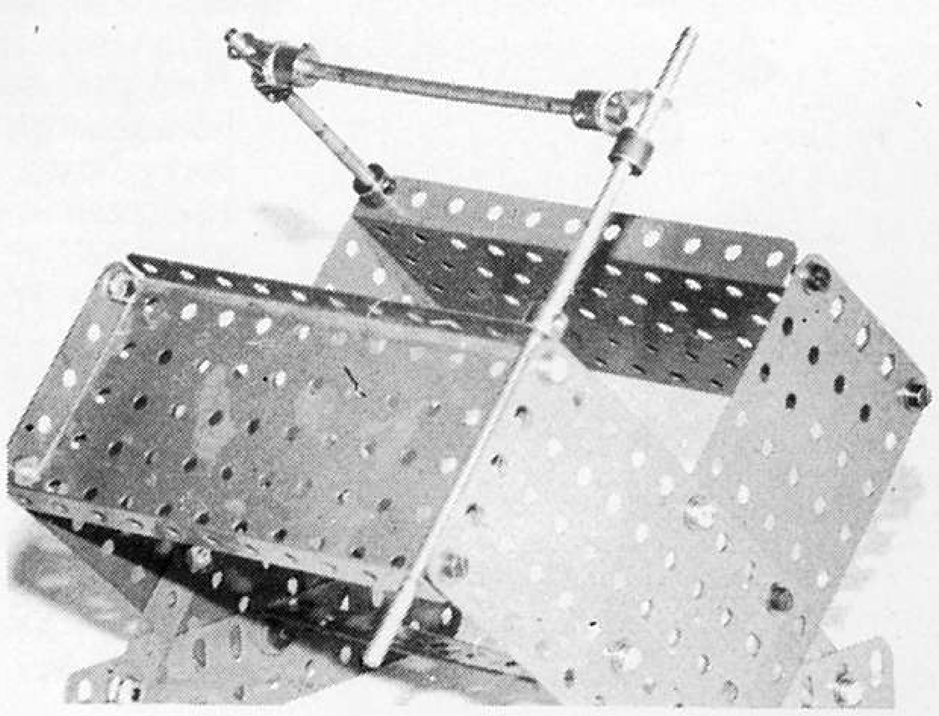
In thirty years of working on aircraft, missiles & spacecraft I have never seen it used, or been able to use it myself, although a colleague thought he once saw it in the steering gear of a toy steam roller. It looks as though there ought to be a use for it in control runs in aircraft, but aircraft draughtsmen are understandably cautious and difficult to convince'.

Construction of the demonstration mechanism, (writes 'Spanner'), is probably the easiest

Fig 1: A general view of the mechanism described by Mr. Tonkin. It was originally published in an article by G.T. Bennett in 'Engineering' magazine for the 4th December 1903.

Fig. 2: Recommended method of adjusting the link-rod.





way to understand the action of the Bennett Mechanism at this point, as a written description alone rapidly becomes incomprehensible. A suitable framework is assembled as depicted in the illustrations, and this consists of two 5½" x 2½" Flanged Plates, supported by four 4½" x 2½" Flat Plates bolted to each short flange and aligned at 90 degrees. This assembly is in turn supported by a base consisting of two 5½" Flat Girders, a 5½" Double Angle Strip and four 2" Perforated Strips for bracing purposes. Once the basic framework has been assembled, the mechanism itself can be incorporated.

Through the opposite end holes of each Flanged Plate's long flanges are journalled two 5½" Crank Handles, held by Collars. Each Crank Handle shaft is extended to form a built-up crank comprising a 1½" Axle Rod held in a Coupling, in turn this is held by a 2" Axle Rod held in another Coupling fixed to the Crank Handle shaft. The built-up cranks must be identical. The 1½" Axle Rod in each case is angled at roughly 22½ degrees to one side.

The link-rod connecting the two built-up cranks consists of a 5" Axle Rod carrying a Small Fork Piece at each end, these are angled at 90 degrees to each other and Fig. 2 shows a method of adjusting this to obtain best results. The built-up cranks must be adjusted so that at their dead centre positions the attachment point to the coupling rod, and therefore the coupling rod itself, lie on the centre line of the

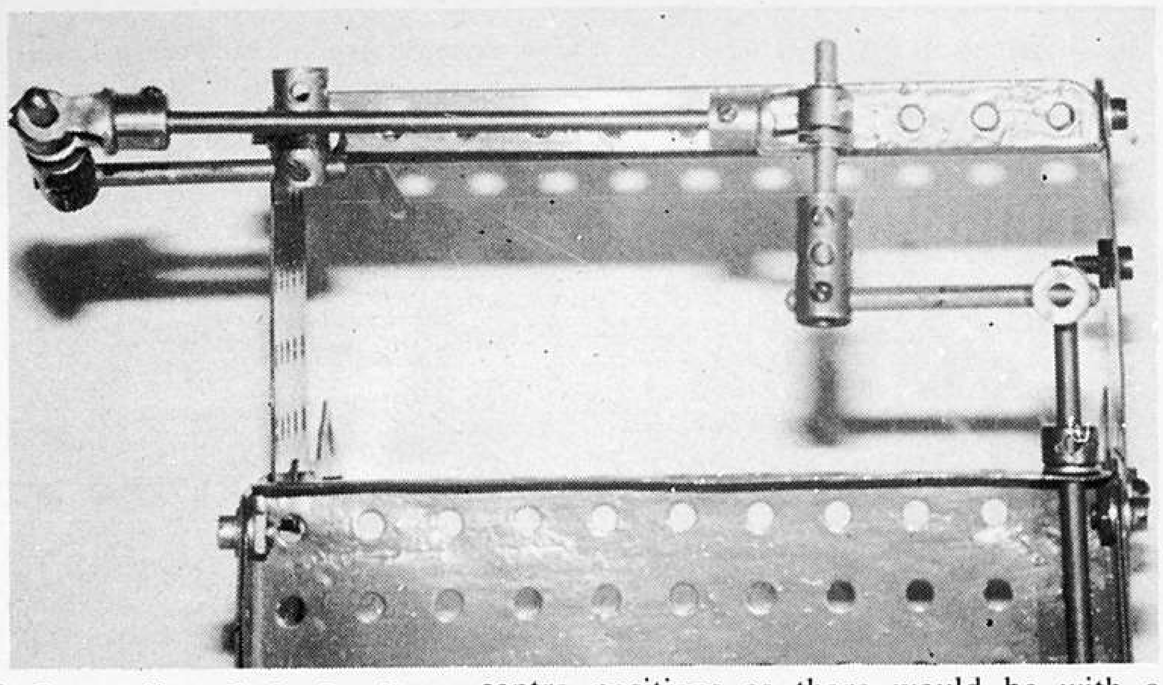
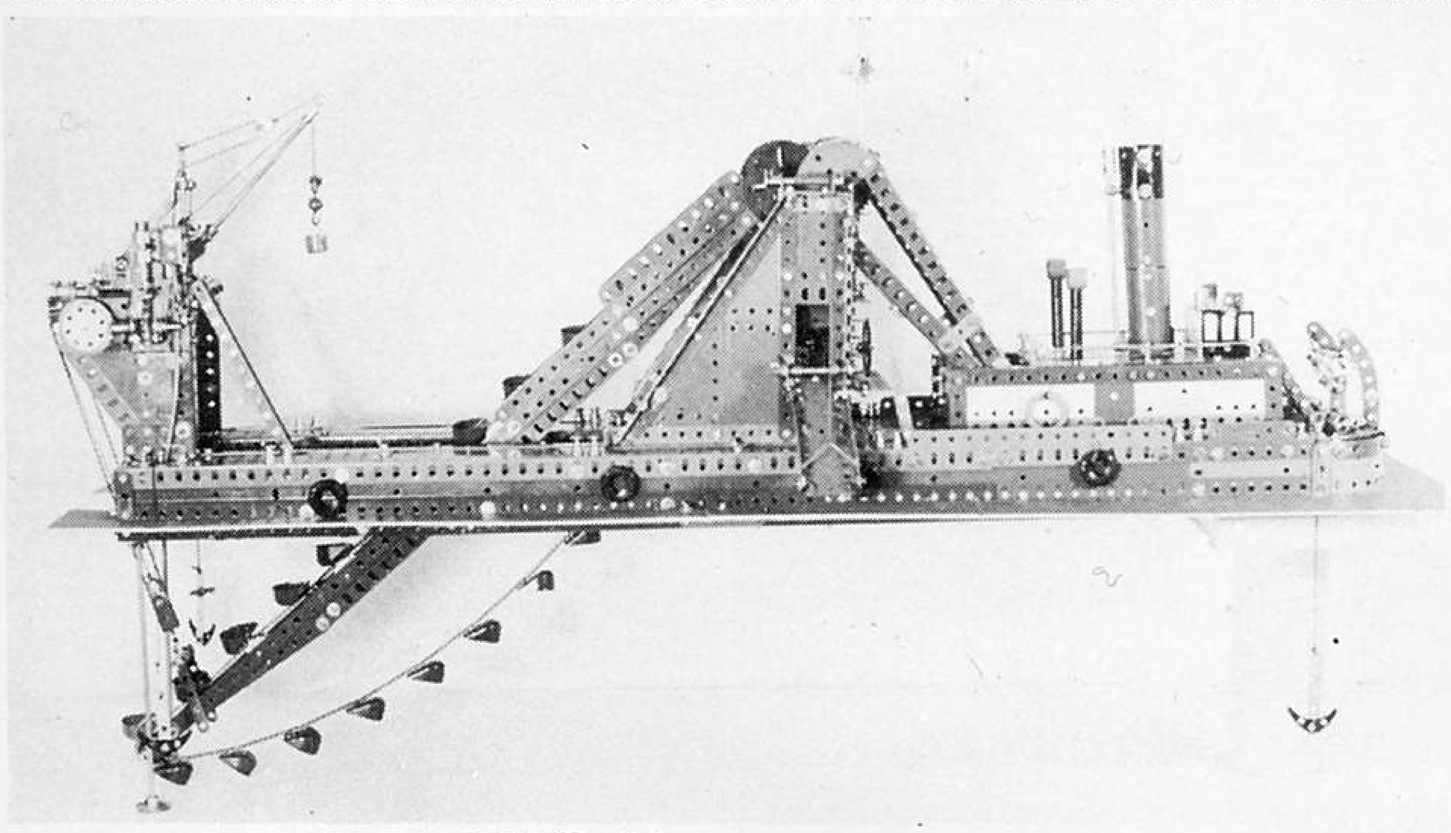


Fig. 3: The coupling rod is adjusted so that it lies on the centre line of the mechanism.

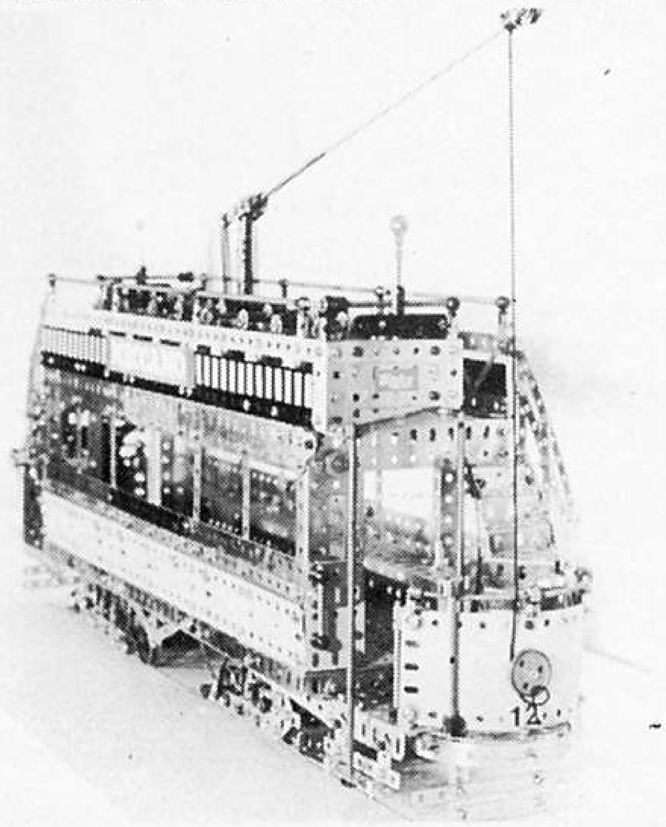
mechanism, (Fig. 3). Once adjusted, the Small Fork Pieces are secured to their respective cranks by means of Collars, using Washers for spacing purposes to prevent any drift of the Fork Pieces up and down the crankshafts when the mechanism is operating.

'It is worth adjusting carefully, (writes Mr. Tonkin), as it will operate very smoothly, without 'tight' spots, if you do. What is now revealed is the surprising fact that the mechanism can be turned continuously in either direction from either end, without any dead spots in the dead centre positions as there would be with a locomotive coupling rod mechanism. The velocity ratio is not constant, but ripples above and below unity.

The reason for the 'skew isogram' name deserves some explanation. If one draws a four-sided figure with opposite sides of equal length, we call it a parallelogram. If we twist a parallelogram into three dimensions, the resulting four-sided figure is called a 'skew isogram'. The four links of Bennett's Mechanism lie along the sides of a skew isogram'.



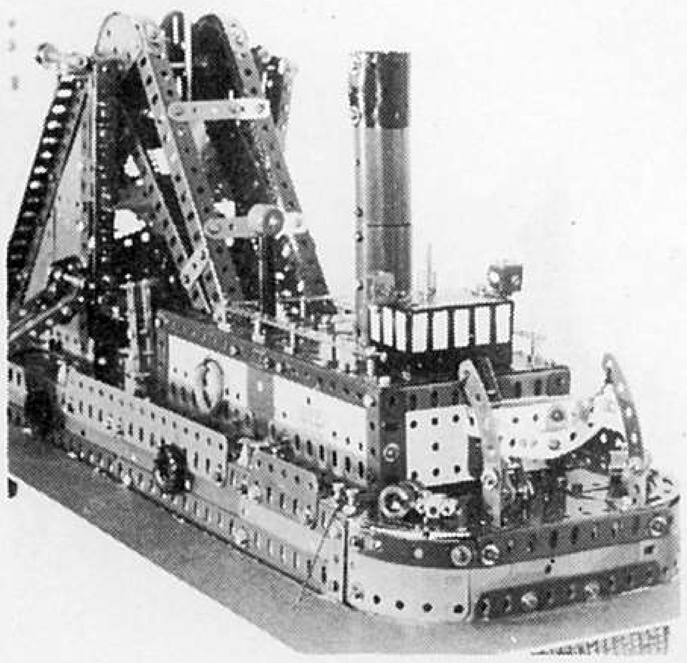
This full length view of the port (left) side of the Dredger gives a clear indication of the model's large size. Approximately 30 obsolete-pattern Meccano Dredger Buckets are employed.



Stairway, handrails, trolley pole and many other find details are evident in this end view of the Tramcar. Models of this type are ideal for Exhibition work, where their fine detailing can be displayed to the best advantage.

I HAVE pleasure in reproducing here, two excellent advanced models by Mr. Bernard Hodgkinson of Stansted, Essex. The first is of a Bowwell self-propelled bucket ladder dredger, originally inspired by the Shoreham harbour Authority's dredger 'Adur'; and the second is an up-dated version of Southend-On-Sea's tramcar No. 12, redesigned from an original model built by Mr. Hodgkinson four years ago. At Mr. Hodgkinson's request I am delighted to make acknowledgement for the photographs to Mr. D. Minchin, of Saffron Walden, Essex.

The Windmill Sails forming the bridge house, main superstructure and lifeboat are seen here in this view of the model's stern.



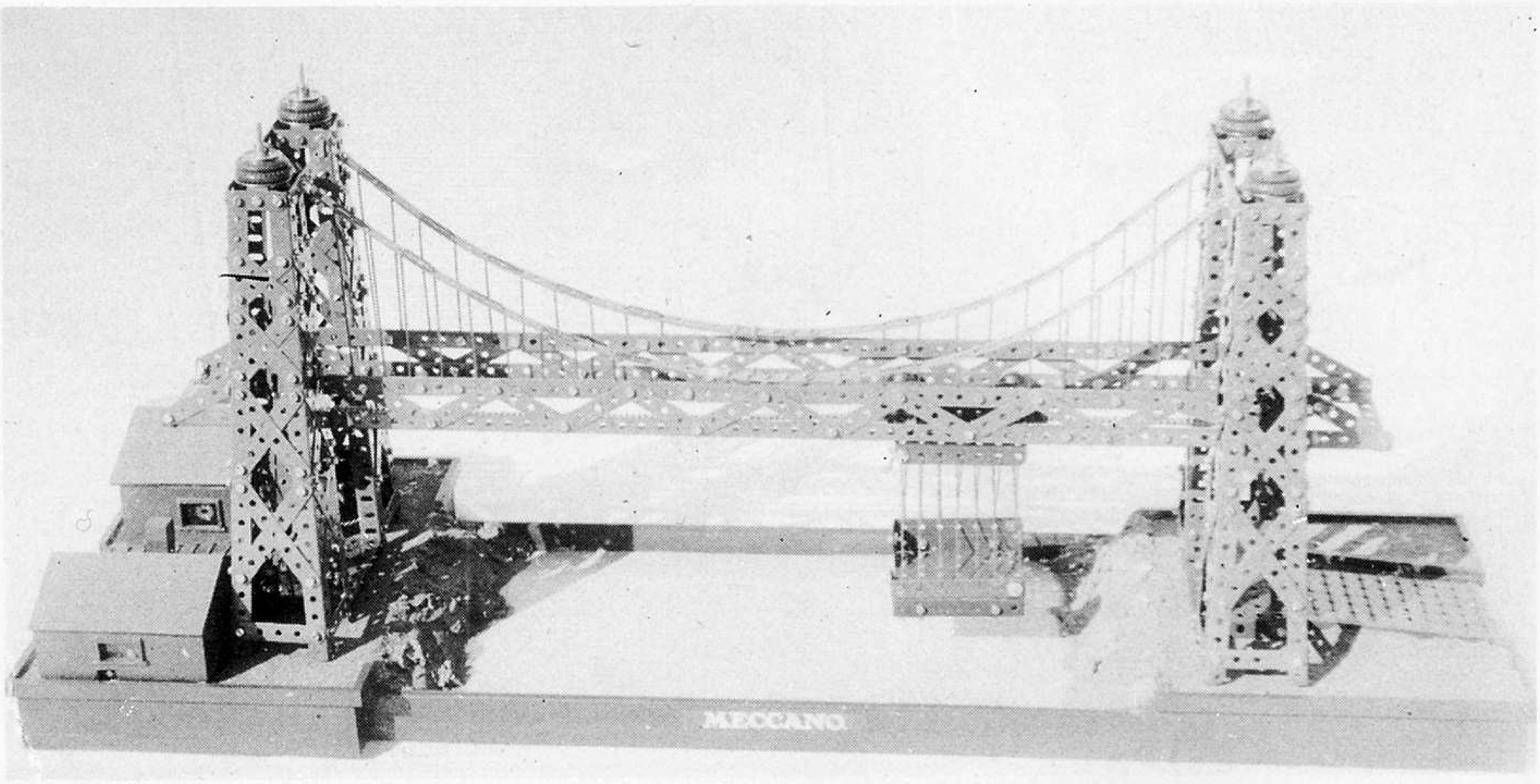
DREDGER

This is constructed to an approximate scale of 1:30 and utilises two Motors-with-Gearbox, one powers the ladder hoist and the other operates the bucket chain. The hoist motor is concealed in the bow of the port (left hand side) pontoon and the bucket chain motor is situated in the deck house. Pre-war type criss-cross pattern Flexible Plates are used to simulate the iron plate deck, and further realism is attained by the use of Windmill Sails, bent to form the bridge house. The buckets can be arranged to discharge to either side, and feed hungrily from a 'harbour floor' consisting of dried peas or lentils etc. Mr. Hodgkinson states that the model operates quite satisfactorily, with a minimum of spillage from the dredger buckets.

TRAMCAR

Models of this type are evergreen favourites with Meccano hobbyists, and one glance at the accompanying photographs immediately confirms the success with which the realistic appearance and unique atmosphere of the original has been captured in the model. This is to a scale of 1:14, and features very close copies of the Brill 22E trucks, each powered by a Motor-with-Gearbox. The side-bearing feature is represented by four Eye-Pieces on each truck, rotating in curved segments composed of suitable Curved Strips bolted to the underside of the body. The only significant departures from scale or prototype are the exterior springs on the trolley arm and the fixed trolley head. As with the dredger, Mr. Hodgkinson reports that the model runs well, despite the fact that only a short test track, with overhead line, is available.

MINIATURE SUPERMODEL!



This main view shows to advantage the high degree of realism, and excellent proportions of Mr. Staveley's Transporter Bridge.

A refreshing and original approach to an old Meccano favourite, by VIC STAVELEY

Photographs by Norman Mason

THIS latest version of the ever-popular Meccano Transporter Bridge IS different, there's no doubt at all about that! Vic Staveley of Blackpool has achieved the best of all that Meccano has to offer in terms of realism, detail, reliable automatic operation and impressive construction, in a model that is immediately distinguished by it's diminutive size.

In fact, it's only three feet long, including the oversize baseboard; this too is exceptional amongst platforms for Meccano constructions in that it is arranged in the form of a diorama. This provides an ideal, some may say beautiful, setting for a fine model, greatly enhancing the already very lifelike appearance.

Although this model is fully comparable in terms of realism to even the pre-war Supermodel 21 Transporter Bridge, it disproves for ever the myth that copious quantities of parts are required to make an advanced model of this nature. The four main pylons are constructed in an almost identical manner by cross-bracing commonly available 12½" Angle Girders with 3½", 3", 2½" and 2" Perforated Strips, arranged so that the four Angle Girders in each pylon lean towards the top to form a 1½" square, from the base area of 2½" square.

Each pair of pylons are connected by a 3½" x 2½" Flanged Plate at the bottom, and two compound 6½" Strips at the top. 2½" Strips are used to connect the next to the bottom holes of the 12½" Angle Girders, except on the sides facing inwards, 1½" Strips perform a similar function at the top. Decoration is provided by short Axle Rods, each carrying a Bush Wheel, 1" Motor Tyre, 1" Plastic Ring and a 1" Pulley, in that order, held in place at the top of each pylon by a transverse 1½" x ½" Double Angle Strip and Spring Clip.

The bridge span is again constructed from the parts most likely to be present in abundance in most Meccano outfits, and it consists of a lower run of Angle Girders, with an upper run of Perforated Strips. 2½" Strips are used to brace the entire span, in the manner depicted. Four 12½" Strips are curved gently downwards, from the two inward facing 6½" compound Strips, meeting at the centre of the span, overlapping five holes, secured at the centre hole by an Angle Bracket to the strips forming the upper run the span on each side. Mr. Staveley has employed thick wire carefully bent, to simulate the supportive steel hawsers of the original. However, Meccano Cord would easily suffice for this purpose if thick wire was not to hand.

The trolley 'crab', from which the travelling gondola is suspended, is formed quite simply from two 3½" x ½" Double Angle Strips joined by two 1½" Perforated Strips, two 3" Axle Rods each carry two ¾" Flanged Wheels, these run along the elongated hole flanges of the Angle Girders composing the lower run of the bridge span. A length of Chain is passed around small Sprocket Wheels supported on Axle Rods journalled seven holes from each extremity of the span, and each end of the Chain is affixed to either end of the trolley.

A small rubber band, used between the Chain and the trolley for fixing purposes, has the advantage of maintaining tension resulting in smoother running. The gondola car floor is composed of a 3½" x 2½" Flanged Plate extended to either side by 3½" Strips, forming a compound 3½" x 3½" square floor with two 2½" flanges. To these flanges are affixed the sides, each comprising one 3½" x ½" Double Angle Strip and a 5½" Perforated Strip, bent to form a 3½" x 1" Double Angle Strip. The lugs of the latter hold 1" x 1" Angle Brackets which support the 3½" Strips extending the floor. Meccano Cord is used to great effect in representing the supporting cables.

Mr. Staveley used the two buildings clearly shown in the view of the model shown above, to conceal the driving motor and automatic reversing gearbox. A 12 volt DC electric motor is situated in the smaller building, a Worm Gear on the motor output shaft drives a 19t Pinion on an Axle Rod that passes under the approachway to the other building containing the gearbox. This is a standard design, using a slide piece pivotally attached to one hole of a 57t Gear to actuate a forward-reverse sliding layshaft via a short Strip pivotting on an Axle Rod, above; a Bolt head on the Strip fitting between the boss of the 38t Gear and Collar, as shown.

With every revolution of the 57t Gearwheel, which is situated just below, and driven by, the Worm in the illustration, the short Perforated Strip held in the Slide Piece is compelled to move to & fro, shifting the layshaft into for-

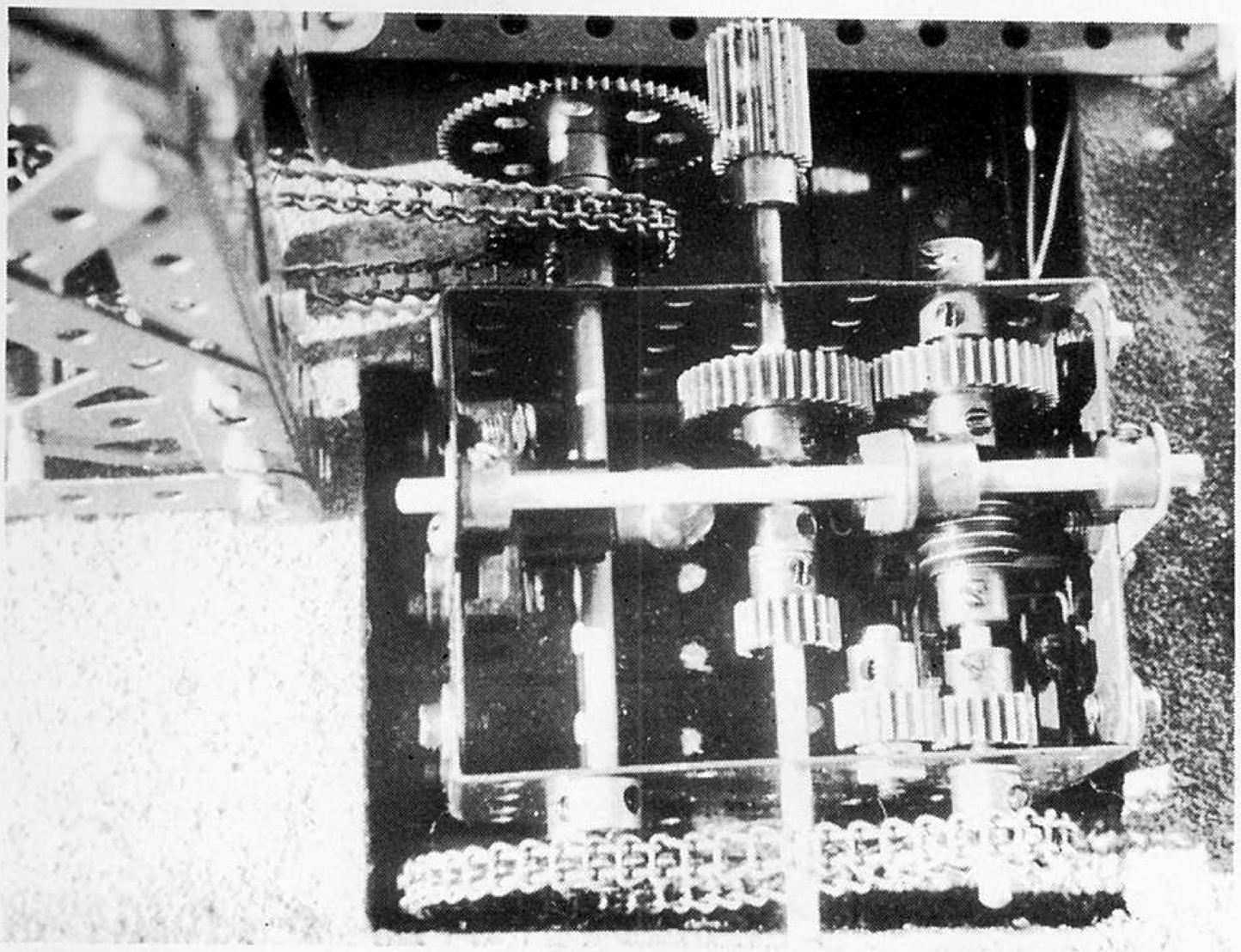
ward, then reverse modes. The Chain drive is then taken from the output shaft, thence via a slip clutch to the trolley drive Sprockets. A slight overrun at each end of the gondola's travel results in the clutch slipping, thus introducing a 'realistic' delay before reverse drive is engaged, allowing time for loading and unloading.

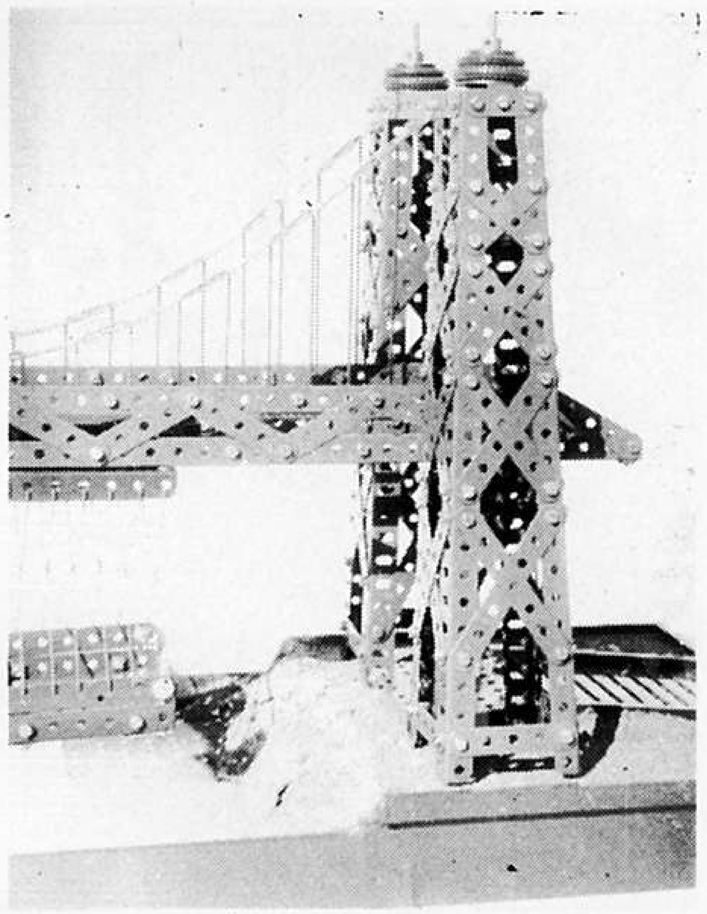
The scenic dioramic setting in which the model is placed provides extra interest, the 'river' is represented by blue paint on the baseboard itself, the buildings & pylons stand on thin plywood covered with standard 'grass' scenic material as used in model railway layouts etc; and the sandy 'banks' are represented by carefully moulded papier mache, again finished by using more standard landscape materials.

At no point are the pylons fixed to the scenic baseboard, it would be highly unlikely that one would find the towers of a real Transporter Bridge fixed to the ground by Angle Brackets and Bolts etc. Vic has taken great care to ensure that this does not occur in his model either. The pylons are affixed only to the Flanged Plates between them, these Plates are then secured to the baseboard by concealed Bolts.

A brilliant red/green colour scheme has been adopted, this even extending to the 1" Motor Tyres and Plastic Rings mounted atop the towers! However, the overall effect is nothing less than splendid, in view of which I'm sure that this & other minor 'deviations' from original finish will be readily forgiven by the crowds of onlookers who will see this fine model operating at Meccano Exhibitions this summer!

Plan view of automatic reversing gearbox, normally concealed within one of the two model buildings incorporated in the baseboard.





The gondola car approaches the end of it's travel. The famous Transporter Bridge at Runcorn provided inspiration for this design.

FIRESIDE FUN

K	G	L	L	A	M	S	T	N	A	R	D	A	U	Q
D	N	R	A	B	E	C	G	E	G	F	I	E	J	U
O	I	O	C	T	W	R	A	H	J	I	B	R	L	I
G	V	T	D	X	U	E	Q	X	S	P	E	A	K	E
F	I	P	D	B	U	W	T	R	L	H	N	B	L	T
U	R	A	I	E	B	D	N	E	S	E	O	A	N	L
N	D	D	Y	N	V	R	N	A	T	L	I	N	O	I
N	I	A	Z	C	S	I	W	M	R	G	T	D	M	S
E	H	J	O	A	E	V	M	N	A	N	G	S	D	T
L	S	S	A	L	V	E	O	O	I	A	E	S	E	L
A	D	T	N	L	L	R	T	I	N	R	S	U	T	T
S	O	E	C	I	A	P	I	S	E	M	I	P	A	F
R	R	H	I	M	V	F	O	S	H	S	F	P	R	A
E	O	C	E	D	A	S	N	E	O	G	N	O	O	H
V	T	T	N	N	U	T	S	R	O	E	E	R	F	S
I	O	A	T	I	K	H	S	P	K	A	M	T	R	K
N	M	R	O	W	N	R	N	M	T	R	S	F	E	N
U	S	T	P	L	A	O	O	O	L	S	O	G	P	A
D	E	G	N	I	H	W	M	C	L	U	T	C	H	R
T	E	C	O	R	P	S	R	E	D	N	I	L	Y	C

MECCANO WORD SEARCH

Search for a word either across, down or obliquely. Circle around word to form shape of a perforated Strip e.g. No. of letters in word equals No. of holes in Strip.

WORDS TO BE FOUND

SCREWDRIVER
COMPI SSION
AXLE
ANGLE
ARM
SUPPORT
SEMI
WINDMILL
WORM
NUTS
THROW
GRUB
END
LOAD
UNIVERSAL
SMALL
SET
RATCHETS
DRIVING
ADAPTOR
FUNNEL
CYLINDER
PINS
MOTOR
JIB
BALL
WASHER
CRANKSHAFT
PERFORATED
HOOK
GEARS
FAN
QUADRANT
SECTION
N.E.M.S.
DOG
LIST
QUIET
BANDS
VALVES
RODS
BRAIN
MOTION
CLUTCH
HINGED
HANK
ANCIENT

47 words to find in total:— almost all Meccano or associated terms.

DEVISED BY KATHRYN BEADLE

In View

MIDLANDS MECCANO GUILD GAZETTE: Issue No. 3; April 1979.

A remarkably well-produced new publication dealing with Meccano matters has appeared over the last 15 months. It is the Gazette of the Midlands Meccano Guild, usually abbreviated to 'MMGG'; and now into it's third issue. The Guild, regularly reported in Meccano Magazine, is the premier adult Meccano Club and this is a worthy forum for it's members' model-building ideas. I must declare my interest straight away and say that I am, indeed, a member of the Midlands Guild, albeit a rather insignificant member, but that is not going to prevent me saying that the Gazette is a jolly good piece of work and deserves a wide readership.

I really do mean well-produced. Printed on a semi-glossy paper so that the photographs come up really well, and presented in a restrained layout style it now runs to 16 pages and adds up to a professional looking booklet. This is in welcome contrast to the fanciful bits of duplicated scrap laughingly described as 'artwork' which often characterises, and disfigures, some hobby club publications, (and I'm sorry to say even the Midlands Meccano Guild has not been entirely free of blame). This Gazette seems to me to set a new standard in club literature and every credit is due to the hard work and expertise of Roger Wallis, Editor; and John Bridger, Art Editor.

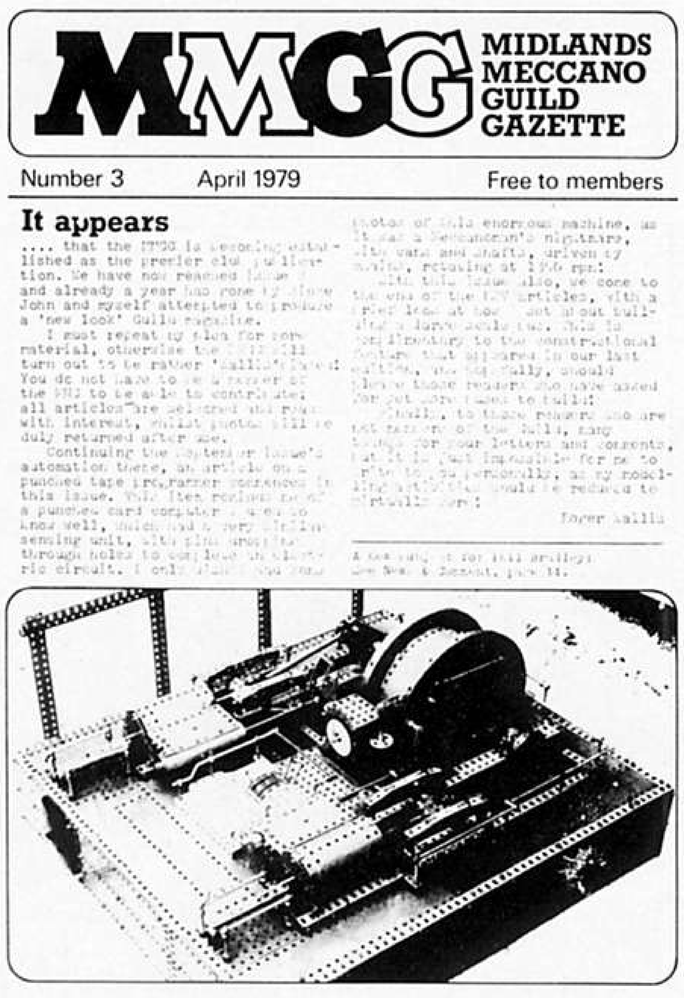
A quick review of the current issue gives us photographs of a Winding Engine and a Crane with details of the roller race, (Phil Bradley); a four movement Gearbox (John Nuttall); a nice Agricultural Traction Engine, (Mike Cotterill), and one of the Editor's own splendid buses. These are accompanied by appropriate descriptive articles and there is other written material relating to theoretical matters, both mechanical, (Alan Partridge and Graham Brown) and electrical (Matthew Goodman). All these articles are suitably illustrated with concise and extremely well-drawn diagrams.

Finally there is a general section dealing with brief points. It is here, incidentally, that the one regrettable incident occurs in that one item duplicates another dealt with in a recent Meccano Magazine. I suppose this is bound to happen occasionally and one respectfully assumes that as the august new Editor of the 'MM' is himself a member of the Midlands Meccano Guild, a short cross-check between the two gentlemen involved will remove all future possibility of overlap.

This agreeable little book is available to members of the Midlands Meccano Guild free of charge,—at least when they're fully paid up! Model builders generally will be pleased to know that a special arrangement makes the 'MMGG' widely available from M W Models of 165 Reading Road, Henley-On-Thames, Oxon, RG9 1DP; at 40p per copy plus 20p post and packing. Alternatively one can place a deposit of a Pound or two with M W Models and they will send you copies at a somewhat cheaper rate until your credit runs out.

Try a copy, and ask for backnumbers, especially if you're keen on really super Buses and Clocks.

ALF REEVE


MMGG MIDLANDS MECCANO GUILD GAZETTE

Number 3 April 1979 Free to members

It appears

.... that the MMGG is becoming established as the premier club publication. We have now reached Issue 3 and already a year has gone by since John and myself attempted to produce a 'new look' Guild magazine.

I must repeat my plea for more material, otherwise the MMGG will turn out to be rather 'skilful'. You do not have to be a member of the MMG to be able to contribute; all articles are welcomed and read with interest, whilst photos will be duly returned after use.

Continuing the September issue's automation theme, an article on a punched tape programmer commences in this issue. This item replaces the one on a punched card computer ... seem to know well, underwent a very skilful sewing unit, also plus circuits through holes to complete the electric circuits. I only [illegible] you could ...

[illegible] motor of this enormous machine, as it was a Meccanoman's nightmare, with gears and shafts, driven by motor, rotating at 1750 rpm.

With this issue also, we come to the end of the 'by' articles, with a brief look at how ... not about building a servo mechanism. This is preliminary to the constructional feature that appeared in our last edition, and hopefully, should please those readers who have asked for yet more items to build!

Finally, to those readers who are not fans of the Guild, many thanks for your letters and comments, but it is just impossible for me to reply to you personally, as my modelling activities would be reduced to virtually zero!

Roger Wallis

[illegible] for this article see Nov. Mec. & Decemb. page 11.

I.K. BRUNEL WALLCHART Produced by the Dept. of Building Technology, Brunel University, Uxbridge, Middlesex.

Readers of Meccano Magazine in recent years will be familiar with the astounding achievements of Isambard Kindom Brunel, (1806-1859). Just two of his many feats of engineering construction include the Royal Albert Bridge at Saltash and the 32,000 tons displacement passenger liner 'Great Eastern'; both of which have been expertly modelled in the past by prominent Meccano constructors.

A wallchart, describing the life and times of the great Victorian engineer, has recently been prepared by the Brunel University. Quite apart from the educational and decorative functions of this large, (23½" x 16½") and attractively laid-out wallchart, it's main value to Meccano Magazine readers will no doubt be in the excellent source material depicted, acting as ideas for new Meccano models, especially for those who wish to follow Brunel's career more closely and reproduce his pioneering engineering works in Meccano.

Originally intended as part of Brunel University's general publicity, it was considered that the wallchart might be of wider interest and so it is being made available at a price of 60p including V.A.T., post and packing. Meccano Magazine readers who wish to obtain the wallchart should write to Mrs. Marianne Bevis at the address above, enclosing a cheque or postal order made payable to Brunel University.

MJW.

'MICK'S REPLICAS' Part No. 121 Price £1.30 Available only from Mr. M. J. Burgess, 56 Park Road, Kettering, NN16 9LL

This very interesting product is the latest to come to hand from this highly respected source. It is a replica of the now very rare 1920 Train Coupling Hook and will not only attract the attention of Meccano modellers but will clearly be of enormous interest to Hornby 'O' Gauge Train collectors. It was, I believe, used on the very earliest, bolt-together Hornby Trains and the hole to accept this coupling in the buffer beam persisted even after the adoption of the Hornby pressed-steel coupling. The large Coupling which is our concern here was rapidly replaced by a smaller one with three drop links, itself already an item supplied in replica form by Mick's Replicas.

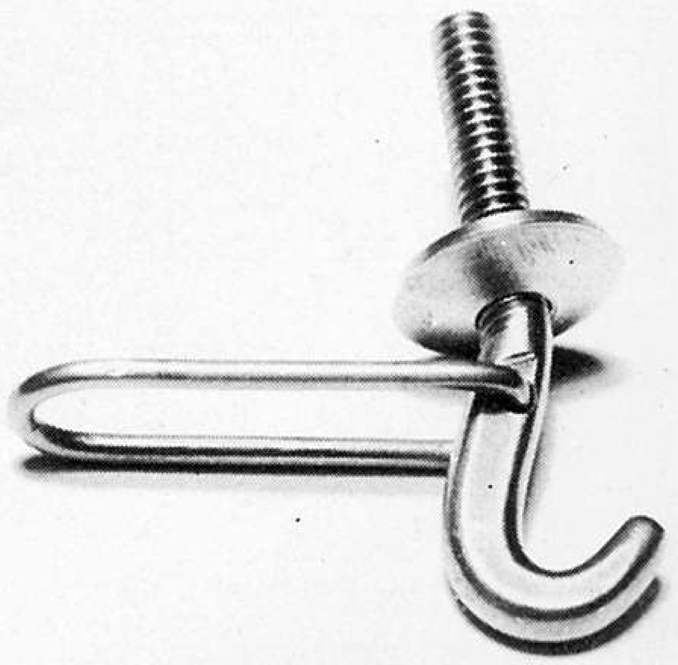
The part consists of three components, a hook with a standard threaded shank; a dished, tapped shoulder piece; and a long single drop-link located in a hole in the root of the hook. One needs to add a standard Meccano Nut to lock the shank on the buffer beam. I have not been able to examine an original Hook in order to compare it with the replica, so those of you in a position to do so must judge from the illustration whether it is a good copy of the shape.

The dimensions are approximately as follows:—

Length of hook and shoulder together; 22mm. Remainder of the shank; 16mm. Depth of hook; 12mm. Overall length of drop-link; 28mm. Diameter of shoulder; 12.5mm. It looks very handsome, though much overscale for Gauge O. I cannot imagine that it would be a very positive link in a train, especially when slowing down or setting back, but the average Meccano modeller would not be greatly concerned with this aspect,—I suppose he would be more concerned with the decorative effect and 'finish' for his model.

Mick's Replicas' usual high standard of manufacture is much in evidence, all made of highly-finished solid brass. On the specimen I examined the end of the thread was a little distorted, which caused the shoulder to run slightly out of true at the point where it really needs to be rather accurate. Nevertheless this is an extremely attractive and unusual subject and ought to find it's way into any serious modeller's collection.

ALF REEVE



NOTE. Due to temporary production difficulties, Mr. Burgess regrets he is unable to accept any further orders for this part. A statement will be issued upon normal service being resumed. ED.

'LITTLE JOE' AND

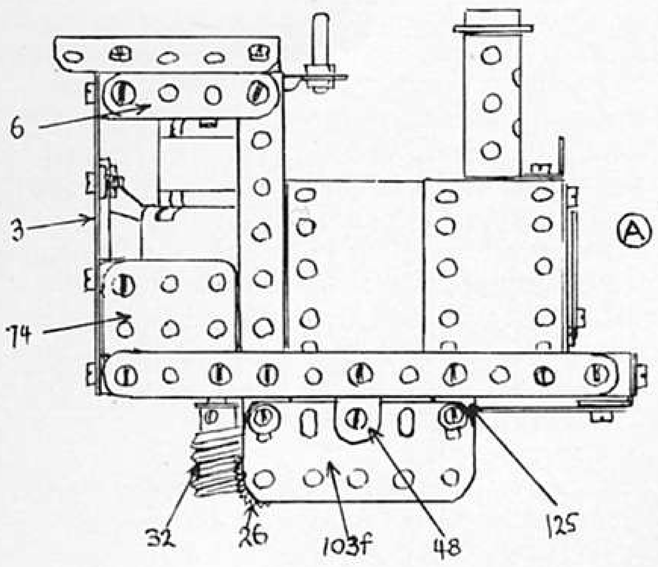
Designed by Dr. Keith Cameron

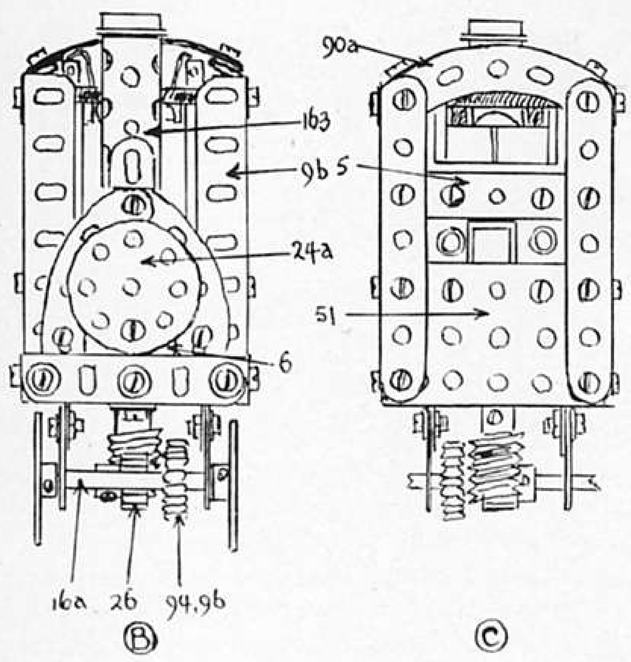
WITHOUT a doubt one of the most 'natural' Meccano Exhibition models I've seen to date, is this immediately eye-catching 'fun' orientated miniature railway system designed by advanced Meccano modeller Dr. Keith Cameron of Florida, USA. The locomotive, affectionately termed 'Little Joe' by its creator, is motivated by a 6-12 volt Motor With Gearbox, powered by four 'AA' size batteries concealed within its boiler.

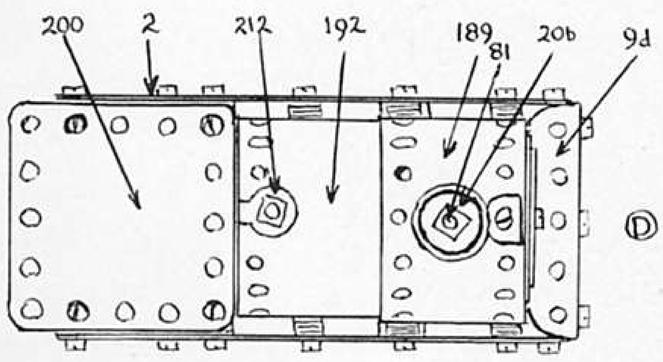
The locomotive can be run independently or on its purpose-built obstacle course railway, 'Tricky Track', views of which appear opposite.

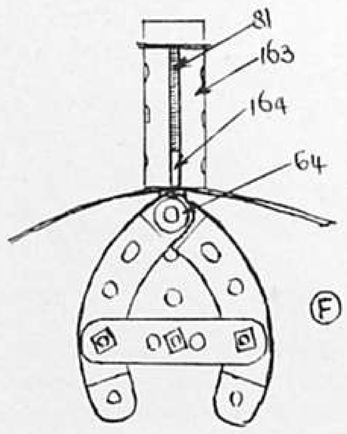
This obstacle course consists of a rolling bridge, a pair of hinged lift bridges and two reversing loops with switches, all incorporated into a track built largely of Flanged Sector Plates, in fact, 68 Flanged Sector Plates are used! Having seen this fine model in use, I can certainly vouch for it's crowd-pulling ability!

Although the construction of the 'Little Joe' locomotive has been described below, this has not been attempted in the case of the obstacle course railway due to its very large size and complex construction. In fact, many pages of the Meccano Magazine would have to be devoted to this one model alone, if every aspect of construction were to be adequately described. The photographs do, however, give a very good idea of the salient features and convey an accurate impression of the operation of this very novel display model. Look out for it at Meccano Exhibitions everywhere!









"Little Joe"

'LITTLE JOE'—the 'Go-Anywhere' Loco

Construction should be straightforward, following the lettered drawings which are:
(A) Side elevation (right)
(B) End elevation (front)
(C) End elevation (rear)
(D) Plan view
(E) Underneath plan view
(F) Boiler unit removed (rear view)

The underframe carrying the wheels consists of two 2½'' Flat Girders and this is attached to the main structure of the locomotive by four Reversed Angle Brackets. The choice of wheels depends largely on the type of surface on which the locomotive will run; for general use, four 1'' Pulleys with Tyres will grip almost anything, but for use with the 'Tricky Track', the front wheels must be a pair of Bush Wheels and the rear wheels a pair of 1¼'' Gear Wheels.

The 4½'' Perforated Strip, labelled 2a in drawing E, performs the important function of preventing slippage between the Worm Gear on the motor output shaft and the 2'' Pinion on the rear axle, when under load. The rear hole of this 4½'' Strip is passed over the output shaft of the Power Drive Motor, (M5), and is held by an Angle Bracket, bolted to it's forward hole and centre hole of the front 2½'' Angle Girder. Adjustment can then be made to ensure good meshing of the Worm with the ½'' Pinion.

The front and rear axles are connected by Sprocket Chain and this arrangement promotes improved traction. The reversing switch on the motor is extended by a Threaded Pin bolted to a Rod and Strip Connector. The 5½'' x 2½'' and 5½'' x 1½'' Flexible Plates comprising the boiler are connected by a 2'' Threaded Rod, the locknut of which secures a Sleeve Adaptor.

A Sleeve Piece is slid over this, forming a chimney, and a 3/4'' Flanged Wheel completes this., being held on the 2'' Screwed Rod by a further Nut. 'H' in drawing E depicts a battery holder, for the four 'AA' batteries, bolted to the 1½'' x ½'' Double Angle Strip. The boiler is held in position by it's own springiness, on three pairs of 3/8ths' Bolts as shown in drawing D. Thus, the boiler can easily be removed at any time. The boiler front consists of two 2½'' Stepped Curved Strips, a 5-hole 2'' Strip and a Wheel Disc, the whole being held in place by a Threaded Boss secured to the inside top forward edge of the boiler.

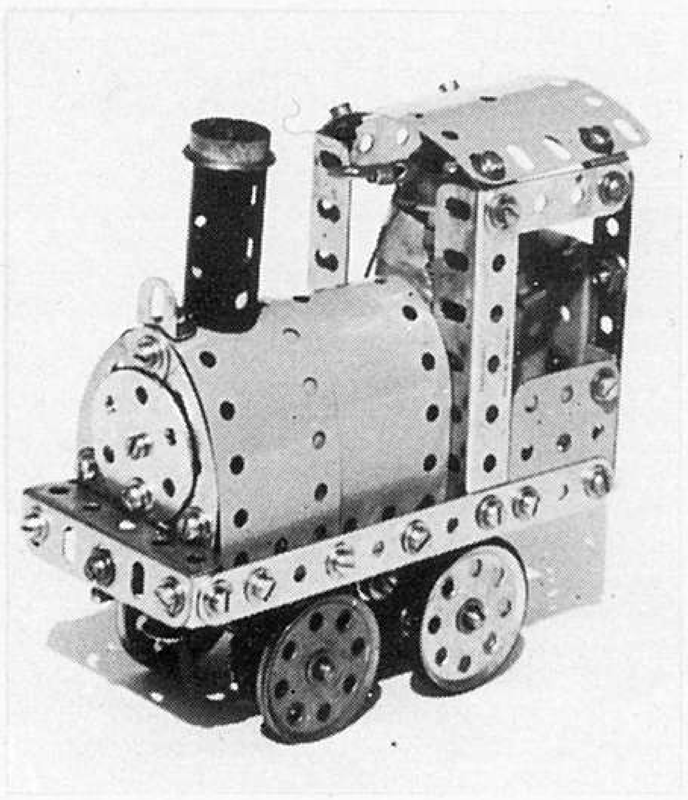
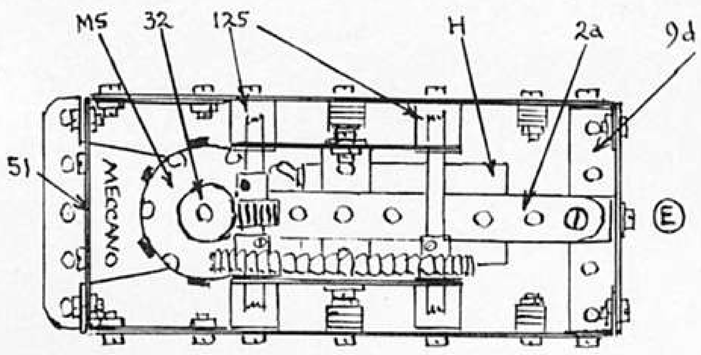


Fig. 5: The star of the show, 'Little Joe'! Its considerable power allows fine performance over a wide range of surfaces, the obstacle course railway is by no means neccessary to enjoy the fun given by this little model. Why not experiment with rolling stock, double combinations, railway tracks, the possibilities are endless!



PARTS LIST

2 of 2	1 of 74
1 of 2a	1 of 81
2 of 3	3 of 90a
1 of 5	18 cm 94
3 of 6	2 of 96
2 of 9b	2 of 103f
1 of 9d	6 of 111c
5 of 12	1 of 115
4 of 12c	4 of 125
2 of 16a	4 of 142c
1 of 20b	1 of 163
4 of 22	1 of 164
1 of 24a	1 of 189
1 of 26	1 of 192
1 of 32	1 of 200
49 of 37	1 of 212
6 of 37a	1 x 6-12 Volt Motor with Gearbox
32 of 38	Wire, batteries,
1 of 48	battery holder,
1 of 51	sockets.
1 of 64	

. . . 'TRICKY TRACK'

Photographs by Nicholas Wright

'TRICKY TRACK'

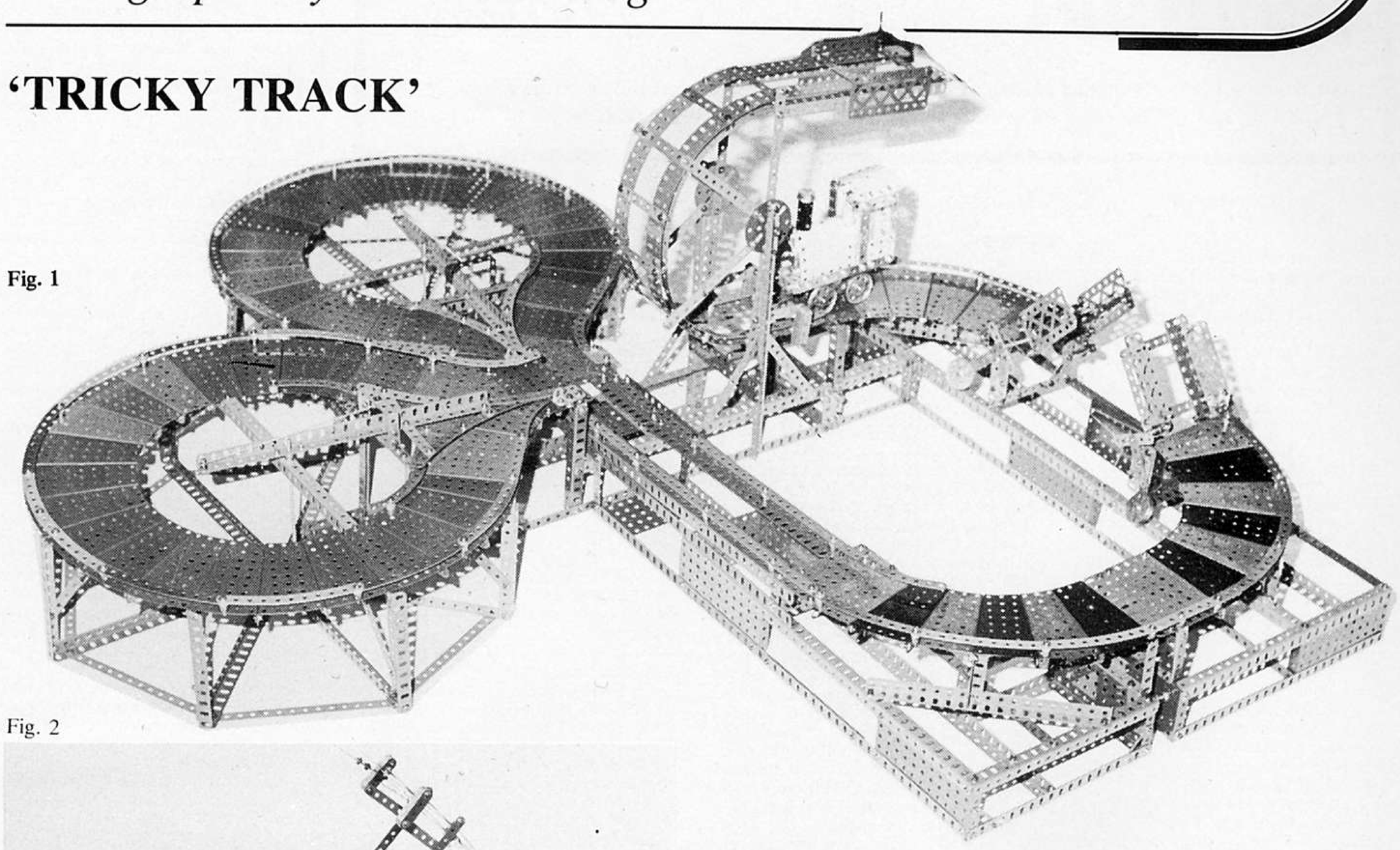


Fig. 1

Fig. 2

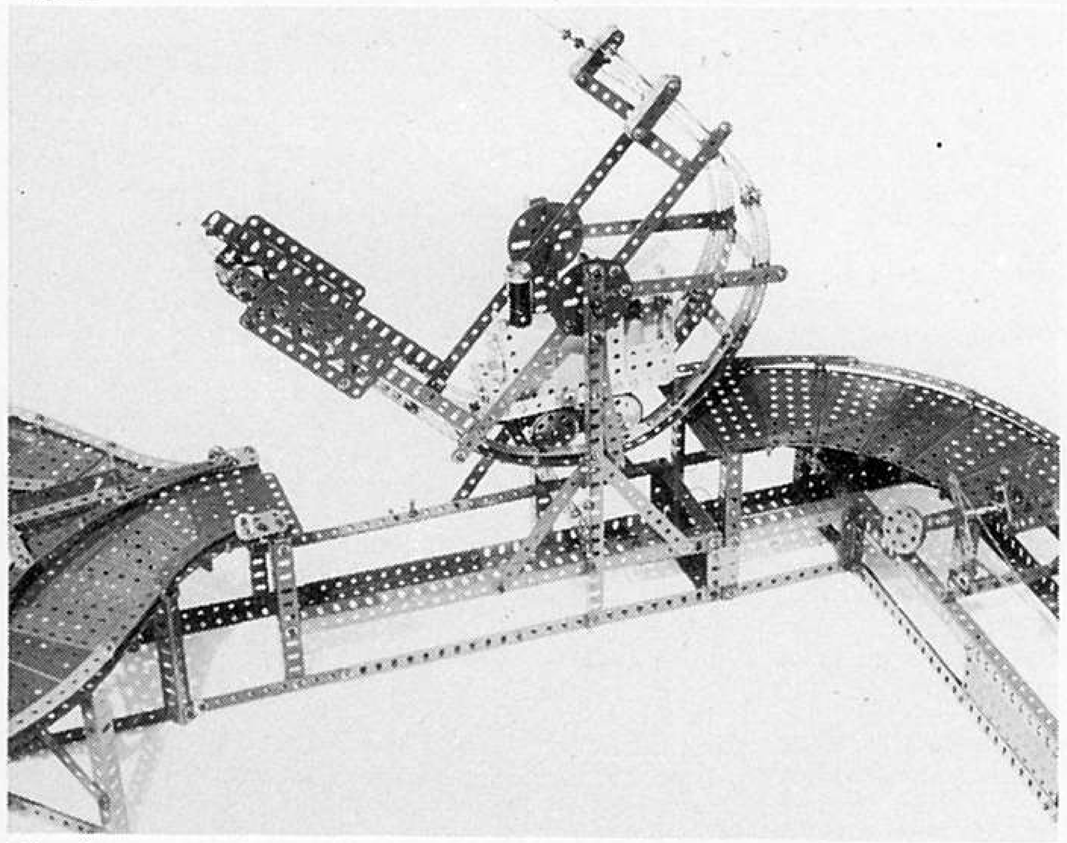


Fig. 3

Four views of Dr. Cameron's fine new display model.

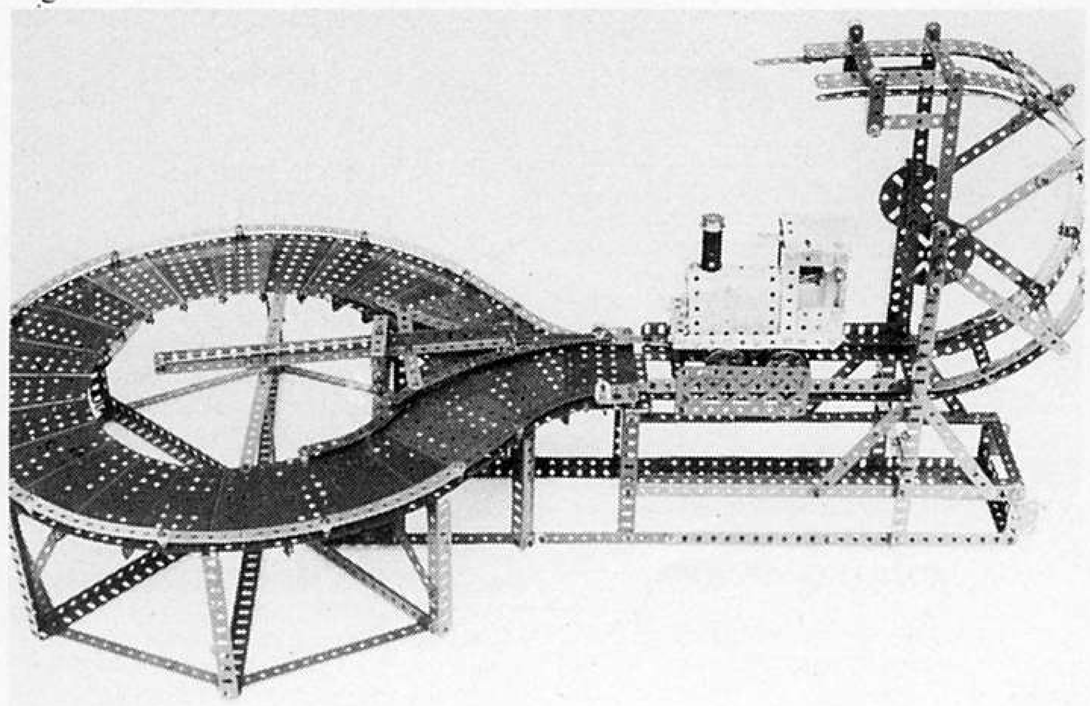
Fig. 4

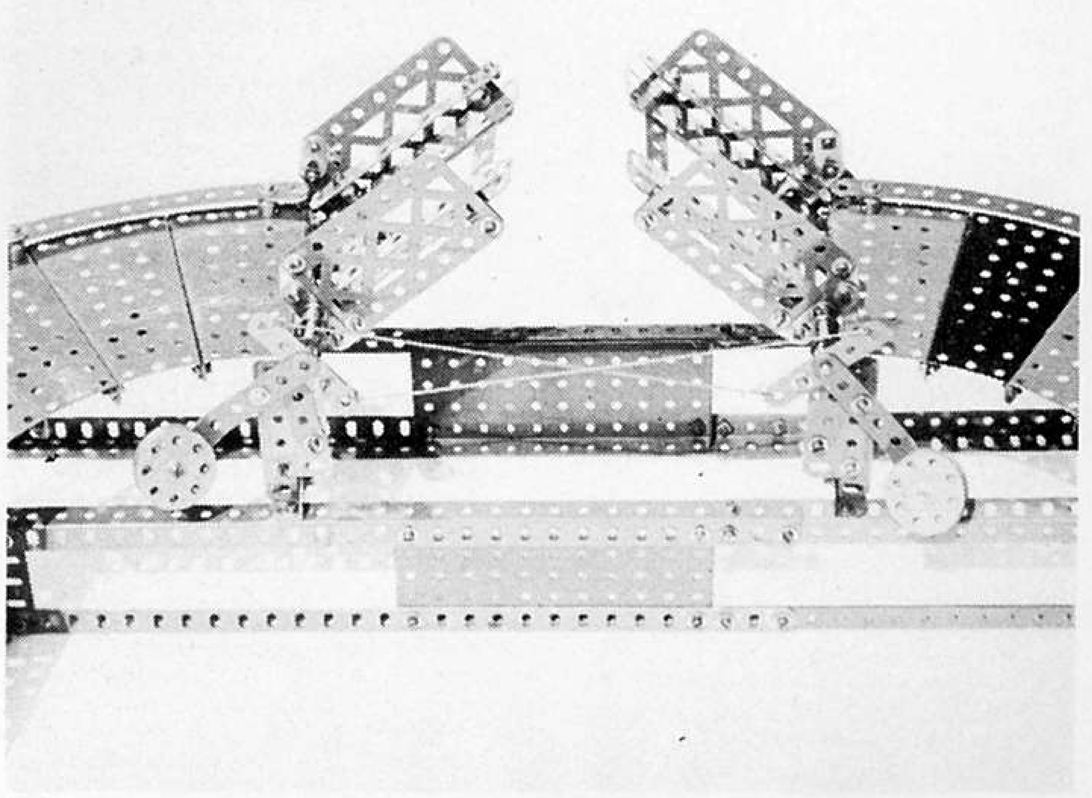
Fig 1: This general view of the complete 'Tricky Track' shows the two reversing loops, rolling bridge and pair of hinged lift bridges. The 'Little Joe' locomotive can be seen to be aproaching the rolling bridge.

Fig 2: Over, over, and . .

Fig 3: ACROSS! Now 'Little Joe' can negotiate the reversing loop, enabling it to return over the rolling bridge.

Fig 4: Another obstacle for the go-anywhere Locomotive! This photograph gives a detailed look at the hinged lift bridges. The weight of the loco. causes one side to lower, and by the linkage shown, this automatically lowers the other side in exact synchronisation, allowing easy passage across.





MECCANO CLUB ROUNDUP

All Meccano Clubs are invited to submit reports for these pages. Report should be approx. 350–400 words long and should reach us by the end of the second month before the month of publication.

GREENFORD MECCANO SOCIETY

In the last Club Report I stated that we were going to hold a mini-exhibition, but at our February meeting we decided against this in favour of an invitation to exhibit in the local Community Centre, on the occasion of the 'Open Day' held there on March 10th, last.

Five members brought models along, Bob Ford's contribution consisted of an old Set 10 Stationary Steam Engine, rather larger than his Tractor, seen at the December meeting. Geoff Pollock built a Robot from the previous Set 9 Outfit leaflet, and Mel Frimley's Avery Tractor with twin pistons located under the boiler was another model we hadn't seen before. I managed to complete my square drawing Mecconograph in time, but it still had a few faults which I have hopefully corrected by now.

The display was quite an attraction with the local children as many of them had not seen a Meccano display before. The Community Centre Warden was very pleased with the models, expressed a wish that the Greenford Meccano Society would be able to exhibit there again, and thanked the members for attending, particularly at such short notice.

The Greenford Meccano Society now has eight members, with five more interested in the activities, but not yet members. There is still plenty of room for new members, who should be Meccano enthusiasts preferably aged 16 years or above.

Anybody interested in joining the club should contact me at the address below, as I will be pleased to send further details.

David B. Nye
Chairman, Greenford Meccano Society
129 Allenby Road, Southall,
Middlesex UB1 2EZ.

GUISBOROUGH MECCANO CLUB

Nothing really of note has happened this quarter, we had planned to go on a trip to the York Railway Museum, but the weather was so bad we had to cancel. We held a party for the members at Christmas, this was a huge success but we lost one of our two female members after the boys insisted that she be kissed under the mistletoe! Actually this wasn't the real reason, she joined a local jazz band. Our other female member has moved from the area so once again the Guisborough Club members are all male.

I have introduced a further certificate to the previously mentioned 1st, 2nd and 3rd Class examinations. This is a 'Master' exam., the ultimate test of skill, and to pass this one has to answer questions such as 'what is the difference between rotary and linear motion', or, 'describe and draw a differential', 'what is a centrifugal governor' etc. These questions may present no difficulty to an adult enthusiast but one must remember that my members are from 8 to 12 years of age. On the more practical side, one has to select a No. 10 model from the leaflets and build this CORRECTLY. Only one child, Richard Ing, has passed the written part of these examinations.

We shall be going on a week-end camp as soon as the weather improves, (that IS a joke!) and another fund-raising event in the form of a sponsored walk looks necessary in the near future.

We at the Guisborough Meccano Club would like to wish Michael J. Walker every success with his bravely undertaken venture as Editor of the Meccano Magazine.

A. Ing.
Secretary.

HENLEY SOCIETY OF MECCANO ENGINEERS

Well over 20 members attended our meeting in January despite the weather and as most brought models there was plenty to see and talk about. One of the youngest members present, Paul Edgington, brought several attractive models along, including an Army Transporter Lorry. Next to Paul, further along the bench, were Bill and Peter Roberts. Bill showed the beginnings of a 'Terex' scraper, each of it's 'ashtray' tyres being supported by a single disc of plywood, an arrangement that seemed to work well. Peter Roberts showed considerable ingenuity in solving the problems of installing automation in a neat model of a Lifting Bridge. Ray and Daniel Senior are another 'family firm', and Ray's contribution consisted of a superb GMM SML Motorcycle, incorporating a PDU and many working features. The cylinder block fins were represented by coils of Spring Cord, resulting in a very realistic appearance.

An E15R in full song called attention to Ted Summerfield's large, new Roundabout, resplendent in red, green and silver, and made particularly attractive by the uniform shade of the red plating. The GMM SML 'Carousel' provided inspiration for this fine effort. The brothers Edwards also displayed new models. Michael showed an electric single cylinder stationary engine using an Elektrikit coil, and also a twin cylinder version built into an attractive model of a 1895 Benz motor car. Michael's brother Philip demonstrated his Comet Mk. 1 Tank, displaying it's suspension to advantage when negotiating obstacles such as other members' feet etc.

Tony Homden showed his latest 'Aero' acquistitions including a biplane made from the continental style corrugated parts. Also, Tony had with him the start of his new Robot. It travels on track comprising Double Angle Strips linked together by Fishplates, thus providing a smooth bearing face with no Nuts or Bolts in it. Another model in the making, in this case a large crane, was shown by Bob Ford, and the crane theme was continued by Eddie Oatley, whose grabbing crane worked as reliably as ever on it's usual fare of plastic crumbs.

Other models present included Nick Roger's stately Rolls-Royce, a Bulle Clock by Jack Partridge with it's relatively simple but very elegant mechanism, and a racing car by Adrian Ashford.

Altogether an excellent evening with refreshments to the usual high standard supplied by Mrs. Wright. New members are always welcome and if anyone wishes to join the Henley Society of Meccano Engineers they should contact Geoff Wright at 165 Reading Road, Henley-On-Thames, Oxon, RG9 1DP. (Tel. 04912 2436)

Tony Knowles

HOLY TRINITY MECCANO CLUB

The 24th meeting was held on 28th October 1978. New members were introduced by the Chairman, namely Ivan Maykells; his wife, Anne, and son Jeremy, who had made contact at the Henley Show. Martin Colley, another new member, was attending for the first time.

The AGM commenced at 3 p.m. and apologies for absence were received from a number of members. The Secretary gave his report, saying that membership had been maintained at 35 seniors and 4 juniors. Members had supported Exhibitions at Horsham, Fratton and of course, Henley. We had also been able to assist in a publicity effort organised by D.R.S. News Services. Tony Homden had also appeared on 'NATION-WIDE' with his Brunel Block-making machines.

The Secretary then presented the accounts, showing a slight downward trend in the balance. There was no need to alter the subscription rates of £2 senior, and £1 for juniors, (under 18). Thanks were expressed to Vi Palin for her help in typing the club reports and notices, and providing refreshments at such a reasonable cost. A vote of thanks was passed to James Dowswell for his excellent reports on the models. The election of officers resulted in no change; President, Tony Homden, Chairman, Eric Schoolar and Sec/Treas., Frank Palin.

Tony Homden stated that if there was sufficient support he would undertake to photo-copy some of the more interesting items from the minute books of the original Holy Trinity Club under the leadership of Stuart Wilson. A show of hands indicated that a majority of members were prepared to support the venture.

A discussion ensued over the timetable for meetings. The suggestion that talks on the models should start earlier at say 2.15 p.m. was agreed. It was also suggested that our 'meeting' at the Henley exhibition should only be classified as a 'visit'. The membership did not agree when the proposition was put to the vote.

James Dowswell's report on the models has been circulated to members. The Stuart Wilson Cup was won by Phil Bradley for a rather unusual 'Titan' Block setting crane, built from a photograph in a book published in 1911.

The meeting closed at 6.30 p.m. the hall having been cleared and left tidy.

The next meetings are on Saturday 28th April, and the 27th October 1979, at the Church Hall, Hildenborough, Kent.

F. Palin,
Hon. Secretary
22 Highfield Close,
Pembury,
Tunbridge Wells,
Kent. TN2 4HQ.

NORTH EASTERN MECCANO SOCIETY

Despite the prolonged severe winter, the Society has been able to hold successful meetings. A well attended meeting at the end of November last year took the form of a review of the Exhibition, of which an illustrated record will be found elsewhere in this issue.

The January meeting had to be cancelled due to heavy snow in the area, but we were able to hold it towards the end of the month in between blizzards, as it were, and a very interesting meeting it proved to be, even though there was only a moderate attendance of ten due again to the weather and distances some members have to travel.

Plenty of interest was created with obsolete nickel Meccano parts from two members, with one or two rare items shown to those present. Joe Etheridge brought a rotating Helicopter which lifted and traversed under its own power at the end of a radius arm. Frank Beadle showed a working model of a Mississippi Paddle Steamer in pre-war Blue-gold material. Kevin Beadle displayed a model of an Army Truck in Multikit colours, whilst Ray Stephens and Joe Etherbridge showed differing sets of large tyres, one with a neat built-up rear axle hub.

The Annual Meeting in March was well attended, again in between spells of very bad weather with heavy snowfalls. The business of the meeting resulted in the election of Officials and Committee for the year 1979-80 and other items affecting the annual outlook of the Society.

This meeting brought a crop of new models completed on the winter evenings. John Lythgoe brought an almost completed Orrery built from details in a Meccano Magazine. Dave Dalton who tends to keep exclusively to transport in his model output, presented a realistic Ford A Series, AA Recovery truck in new colours, with many interesting features to capture the realism we have come to expect of him. Chris Barron showed an Astronomical Clock nearing completion as a fine-detailed, accurate model, based on the GMM design,

Joe Etheridge exhibited a GMM model Loom, modified and with a pattern programmer, showing the intricate clearances that this type of model entails, to tax it's builder. Joe also brought along a large Jib Crane, which was too big to be erected in the room. It featured 4 PDU motors in the superstructure, with 4 'Crane' motors each driving the rail bogies simultaneously, in a novel arrangement.

Bryan Reay startled all with his freelance Nut and Bolt Sorting Machine, which carefully sorted out a Boiler full of varied sized bolts through an oscillating motion from an EI5R Motor situated in the lower frame. A small model, but a boon when dismantling larger models no doubt. Alf Dean captured the attention of all with his splendid model of an ERF Articulated Lorry with York Trailer, the latter showing a Hobo floating rear axle, fully sprung, built in robust form, authentic to the last detail, showing vehicle building skill to its highest standard in Meccano.

We look forward to an eventful year again, introducing a new feature of a Junior Spring Model Building Contest. We also wish success to the Meccano Magazine and its new Editorial Staff.

Frank Beadle (Secretary)
Greytyles,
33 Yoredale Avenue,
Darlington,
Co. Durham DL3 9AN.

NORTH MIDLANDS MECCANO GROUP

The NMMG Winter Meeting took place on January 20th 1979 despite a fair amount of diversionary activity by the Clerk of the Weather. A good deal of snow fell locally during the previous 24 hours, thickly again on the morning of the 20th, and in the circumstances quite a surprising number of members actually turned out. Many more telephoned their apologies,—typical being Mike Cotterill and Alan Scargill who set out early from their East Coast fastness but were turned back by the conditions after twenty miserable miles of motoring.

Most people who arrived were reasonably 'locals' but Alan Partridge reported a reasonable journey from Sutton Coldfield, (sure was, too!) and

Robin Schoolar appeared on a bicycle, announcing that he'd left Bristol the previous evening! (To be fair, his bike had travelled most of the way in various trains' guardvans). Even Bob Hauton trudged in through the snow looking like Good King Wenceslas, but the main point is that all who got there thoroughly enjoyed the meeting which resulted.

There were good models on show too—no restrictions on that front. John Beardsmoore produced a spectacularly beautiful Supermarine S5 Seaplane built from carefully restored nickel parts and based on a 1926 Set 7 model, and both he and Bert Shaw had animated cycling figures on show. John's model progressed on a Penny-Farthing tricycle, waving a top hat, whilst Bert's progressed gaily round a contrarotating decorated pole, beautifully turned out in full evening dress! Another unusual model of a very different type was Bob Hauton's Razorblade Sharpening Machine with a neat Geneva mechanism for turning the blade over to sharpen both sides.

Julian Coles showed his Coles (!) Colossus 6000 lorry-mounted crane, in contact with the ceiling and lights as usual, and another big crane was Richard Palmer's neat variant of the Set 10 Railway Breakdown Crane with a much improved gearbox of Richard's own design. Of course there was Alan Partridge's as yet unfinished, but already fascinating, Ping-Pong Ball Machine which moves balls round a spaceframe full of ingenious functions. Most of these are gravity powered, but there's a Track-Pack based elevator at the rear and what looks like the remains of an SML Steam Digger in one corner.

The Autumn meeting has been fixed for September 22nd. Anyone is welcome to attend of course, and till then, the Group members keep in touch through the 'Newsmag'. So anyone who isn't already a member but would like to join a lively club—come on in!

G.M. Coles
Secretary; NMMG
'Little Court'
Bleasby
Notts

NORTH STAFFORDSHIRE MECCANO GUILD

Formed in August 1978, the NSMG has, in the nine months since, established itself as a force to be reckoned with as far as promoting the Meccano hobby is concerned. Originally the brain-child of Mr. Douglas Ross, of Newcastle, whose childhood love for the hobby was re-kindled in retirement, resulting in the purchase of a No. 10 set; a ready response for his initiative in forming a club was received from enthusiasts residing in nearby Leek, Congleton, Stone, and Waterhouses.

At the inaugural meeting in August 1978, Reg Hall of Waterhouses was elected to be the first Chairman of the new club. The position of Secretary, always one requiring an energetic and enterprising personality, was taken up by George Cartlidge. Douglas Ross accepted the position of Press Officer, and went about his task with such effect that the North Staffordshire Meccano Club was soon very well publicised in the local newspapers.

The club features many other prominent Meccano modellers in it's ranks, and one name instantly known to all Meccano Magazine readers is Roger Le-Rolland. His fine efforts at gaining publicity by using his advanced constructions in window displays, interviews in the local press etc, have made him very well known to all. Brian Wagstaff is again no stranger to readers of the 'MM', and he owns a formidable collection of Meccano parts spanning all production eras. In fact, so much Meccano is hoarded away at his home in Congleton, that Secretary George Cartlidge exclaims, 'his house is practically made of the stuff!'.

George himself favours the ever popular Fairground modelling theme, and his fine models of this nature testify to his ability in this area. His latest project? A fairground Dive Bomber! Top-quality modelling skill is not the exclusive preserve of the adults in the NSMC, Philip Wooliscroft won a prize at the Henley-On-Thames Meccano Exhibition for his 13 piece model, and for a Junior member of any club, that's very good going! Philip's father, Bill, is an advanced constructor who has written articles for the 'MM' in the past.

Plans for the future include an ambitious array of Meccano models at the Stone Festival during June, a display at the Henley Meccano Exhibition, besides a strong representation at the North West Meccano Guild's Meccano Exhibition in Wigan on May 12th, which will have passed by the time you read this.

All in all, an ideal story of an ideal Meccano club; enthusiastic members, plenty of top-quality models and a good range of planned activities to look forward to. A bright and happy future lies ahead for the North Staffordshire Meccano Club, and I'm certain that every reader will join me in wishing the club every success!

Anybody wishing to join the NSMC should contact Mr. George Cartlidge at 1, Oak Road, Stone, Staffordshire, ST15 8NG.

MJW

NORTH WEST MECCANO GUILD

Progress has continued along very satisfactory lines since the last report on the NWMG's activities appeared in these pages. No fewer than six new members have joined in the last six months, these are, James Bell of Bootle; John Dalton of Oswaldtwistle, John Evans of Anglesey, Chris Taylor of Ormskirk, Gerry Clements of Upholland and George Barratt of Rochdale.

The new feature in the NWMG calendar, arranged at our AGM last October, is an extra meeting to be held in late Winter. February 17th was the date fixed for this, the unkind Winter weather relenting for the occasion. A surprisingly good turnout made full use of the limited space in the hall, and soon a loud noise was being created by a large number of Meccano motors. Brian Bloor of Burnley added his finely crafted 3-section telescopic ladder showed at the October meeting, to a vintage-type Fire Engine with full operating features, all controlled from the driver's seat. Martin Cassidy of Liverpool impressed all with his staggering Kenworth tractor unit towing a 100 wheel trailer! Continuing the 'impressive' theme, John Evans displayed his superb Blocksetting Crane, and our other Welsh member Peter Greenhalgh provided a note of rarity with his Inclined Rack Railway. This featured unusual band brakes formed of suitably cut pieces of old Flexible Plates. (That's one use for them at least!).

Alan Holman and his son Graham showed a Twin-Elliptic Harmonograph and an excellent miniature Motor Bike, powered by a 'Crane' motor, in addition to many other items. Harry Wolfenden of Rochdale demonstrated the effectiveness of the 50t Contrate Gear as a cutting tool in his version of a Shaping Machine. This operated very well as the cleanly-cut block of wood clearly showed. Ernest Keighly of Preston produced two specialised accessories for his famous sequencing Loom, these were a Beaming Frame, and a Bobbin Winder with digital counter to indicate number of revolutions. Norman Mason, the NWMG Chairman, paid tribute to Roger Wallis, in the form of his version of Roger's famous Grand-daughter Clock. This performed well, but obviously was a little disturbed by being moved from home, as I believe all the most sensitive Clocks are! A real splash of colour came with Vic Staveley's Transporter Bridge, in gleaming red and green parts.

In addition to this, Vic showed a very full selection of obsolete Meccano parts, lovingly restored to original finish and looking superb. An E15R-powered Truck was the first contribution by new member George Barratt, it's many features including controls grouped around the driver's seat, gearbox and steering. John Nuttall's miniature 'Grasshopper' Beam Engine displayed it's unique end-pivot motion to advantage, John also drew our attention to the finer points of a radically-improved, easy to construct, single suspension grab suitable for use with the famous SML Automatic Grabbing Crane, or any similar model.

The meeting closed after the usual chat, refreshments, auction of surplus literature, and loaning of Guild library Magazines. Arrangements were then put in hand for the May 12th Meccano Exhibition at Wigan, which will have passed by the time you read this.

Michael J. Walker
Hon. Secretary.

SOLENT MECCANO CLUB

At the December meeting of the Solent Meccano Club, arrangements were confirmed with regard to our forthcoming Exhibitions for 1979, i.e.; at Chichester on Saturday 19th May, and at Waterlooville on Saturday 30th June. Members of the Club will also attend the Worthing Society of Model Engineers' Exhibition on 22nd April.

The series of talks by individual club members continued at the December meeting, when Tony Knowles brought along his model of an LCC tram which ran on a 6 ft. length of track. Tony described the electrical circuits required to allow the tram to stop and restart at each end of the track. The control system involves relays; the model incorporates bell and lights, the pick-up being via the wheels and return via overhead catenary.

In January an interesting talk was given by the Club Chairman, Chris Goodwin, on the design and construction of his model 'Mr R.T. Zahn' who was seen busily 'drilling' holes in 2½ Strips at his Binns Road workbench. (Perhaps with such a surname Mr Zahn should be operating a gear-cutting machine!) Chris described the problems of automation involved in the model, his aim being to produce a model which will carry out a cycle of operations without attention, leaving Chris himself free to roam the exhibition.

At our February meeting there were several interesting models on display. The Secretary, Charles Harrison, brought along an excellent Marine Engine, based on the No. 5 set model of 1954, but very much modified and improved, and incorporating valve gear, improved crossheads etc. and additional brasswork. Charles also displayed a single-cylinder Mill Engine which amongst other points of interest, included a flywheel made from several 7½' dia. Circular Strips with Axle Rods as spokes.

David Lewis brought a Bus Chassis, still under construction, which is based on the current No. 10 Set Double Decker Bus but much modified, and incorporating an excellent gearbox, clutch and differential. Tony Knowles showed a 'return connecting-rod' Marine Engine, the original of which dates back to 1844.

The model and prototype were described and illustrated in one of a series of articles published in the Meccano Magazine in 1934. Tony's model once again includes a number of modifications and is of his usual high standard.

It is hoped that most of the models described above will be amongst those on show at our Club Exhibitions in May and June.

B.W. Williams,
Club Scribe,
Solent Meccano Club

SOUTH EAST LONDON MECCANO CLUB

Our eleventh meeting took place on 20th January 1979 when twelve members attended with a good selection of models. Frank Palin brought a Stiff-Leg Derrick, model No. 6 in the new Meccano Super Models book by Geoff Wright. It turned out that there were numerous discrepancies in the parts listed as against those actually required to complete the model. The chain drive to the gearbox is badly designed, to the effect that the chain quite often comes off the sprockets when the gear is shifted.

Adrian Ashford brought a display of Hornby 'O' Gauge items, mostly post-war but including some pre-war. It was just a small selection from his large collection which included passenger and goods Train Sets, semaphore signals and two level-crossings all still in perfect condition. A 15 Ton Level Luffing Grab Crane was demonstrated by Eddie Oatley. Standing nearly six feet high and weighing 86 lbs. it was based on plans found in the 'Engineer' magazine. Six electric motors, two of them EI5R's, powered the movements of the crane by remote control. The jib incorporated full balancing which meant that the luffing motor only had to overcome friction.

Our youngest member, Neil Bedford, always seems to bring as many models as the rest of us put together. This time his main one was a Ransomes and Rapier Electronic Excavator, the prototype of which was used in land grading in S.E. England. Also shown was a Railway Observaion/Maintenance Car capable of being driven on road or track. An 18' long version of Doctor Who's dog, K9, was demonstrated, two other models were a 'Crab-Flail' tank constructed from Army Multikit parts and a 2½' long Motorcycle and Sidecar.

We have decided to hold a Meccano Exhibition on Saturday 29th September 1979 at the Sherard Hall, Eltham. This will be our first major public event and all other Clubs are welcome to display their models there. Meetings of the SELMC are held every three months and anyone interested in joining the Club or attending the Exhibition please contact the secretary.

Christopher Warrell
Secretary; SELME,
41 Beechill Road,
Eltham, London SE9 1HJ

STEVENAGE MECCANO CLUB

In May this year, the Stevenage Meccano Club looks back on 10 happy successful years of existence. The Club was started by our Secretary, Dennis Higginson, and his energy and inspiration still maintain the excellent club spirit among the members. Our only regret at present is that the medical profession has not yet found a long-term way of dealing with Dennis's recurring agonies, so that club activities have had to slow down accordingly over the recent Winter months.

Peter Brown and Peter Walton, the first two youngsters with Dennis formed the Club back in 1969, are still with us as adult members. Peter Walton, moreover, has even brought along his 5-year old son to become member number 136. Celebrations during the year, by the way, will include a bunfight.

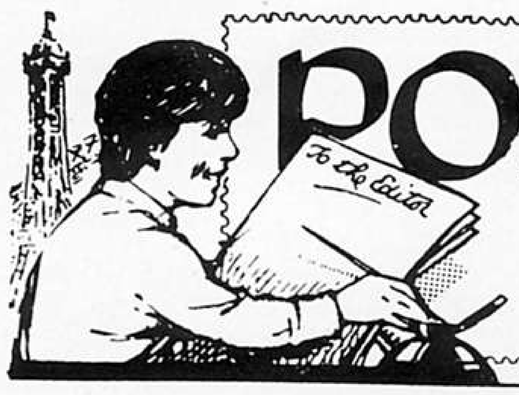
Neil Alston, Editor of the magazine 'Nuts & Boltz', that is published for and by our club and the Wellingborough & District Meccano Club, has now put his third issue on sale. Neil welcomes subscribers and contributors from all over the known Meccano world, and he lives at 11 Gaunts Way, Letchworth, Herts., England; telephone Letchworth 4880.

A regular contributor to Nutz & Boltz and to Meccano Magazine is our Dunstable member Wallie Hinson, whose design-office approach to model illustration appeals to those who have copied his creations. Illness prevents Wallie from coming to our meetings, but he is there in spirit when the lads huddle over his drawings. Wallie also keeps open house for Meccano modellers visiting Dunstable.

The appearance of the SMC robot 'Robby' at the Elim Pentecostal Church is becoming an annual tradition for the Sunday School Group run by Alec Webb, surely one of our most energetic members.

A little to the north, the Staffordshire local papers gave a lot of space to our

Continued on page 69



POSTBAG

Meccano Magazine
P.O. Box No. 4
Binns Road
Liverpool L13 1DA.

VIEWS expressed are not necessarily those of the editor.
As from the JULY issue £1 will be paid for each letter published.

CONGRATULATIONS

Dear Michael,

May I congratulate you on your appointment as the Editor of the Meccano Magazine. I feel that Meccano Ltd. have made a good choice but I feel that you could have difficulty, at first, in taking over from Chris Jelley. I personally feel that the Meccano fraternity as a whole owes Chris a good deal, as the Meccano Magazine had to be fitted in with all the other tasks of his actual job at Meccano as Press Officer.

The January issue was well worth waiting for, (perhaps because my 'bus was on the front cover!), but the new printers let through a good many typographical errors, and reversed captions on the National 'bus photographs.

There is an error in the text describing the reduction ratio of the steering motor gear box. The two gears, (Pinion 21 and the un-marked 57t Gear driven by the motor), should be LOOSE on the 11½" Axle Rod. Two standard Bolts are fitted in two adjacent holes of the 57t Gear, these engage a ⅜" lock-nutted Bolt in the 19t Pinion (21). This Pinion then drives the 57t Gear forming part of the friction clutch. Thus, in this compact space a 27:1 ratio is installed.

On a separate matter, as Editor of the Midlands Meccano Guild Gazette, I hope that we will be able to avoid duplication of material between our two magazines as occurred in the January '79 Meccano Magazine and the April '79 'MMGG'. I am trying to ensure that the 'MMGG' is complementary to the 'MM', publishing the more specialised type of article suitable for the advanced enthusiast, yet still making it readable to non-members of the Midlands Meccano Guild.

Yours sincerely
ROGER WALLIS
Editor;
Midlands Meccano Guild Gazette
Solihull, Warwickshire.

PUZZLED

Dear Michael,

I was puzzled by a letter from Anthony Jowett in the January 1979 Meccano Magazine, referring to SML No. 22, French Pacific Locomotive.

There surely is a mistake here, as Super Model Leaflet No. 22 describes the construction of well-known Traction Engine. Mr. Jowett was obviously referring to the G.M.M. series of Super Model Leaflets, as No. 22 in this series is indeed the French Pacific Locomotive.

First notified in the 'Meccanoman's Journal', April 1971, it was quite obviously not produced 'in those far-off days when costs were virtually non-existent'. Clang!!

FRANK PALIN
Tunbridge Wells, Kent.

. . . And, on the same subject . . .

Dear Michael,

I'm sure many readers will have pointed out to you the error in the editorial comment under the heading 'Grandfather Clock' on page 34 of the January 1979 Meccano Magazine.

I will add to the number by pointing out that SML 22, Traction Engine, was indeed 'produced in those far-off days when costs were virtually non-existent', being first published in November 1928. It is clear, however, that Mr. Jowett is referring to the leaflets published by the Meccanoman's Club and usually distinguished by the abbreviation GMM SML. In this case Mr. Jowett identifies the model as the French Pacific Locomotive which indeed was the subject of GMM SML 22, the designer being Dr. A. Grinnaert of Lens, France. This leaflet is mimeographed, comprises 19 pages of instructions and 34 line illustrations.

The confusion between the two leaflets leads to a fascinating conclusion. The humble four page leaflet describing the Meccano Traction Engine 'would cost hundreds of pounds to produce . . . today'. 'This in turn would price the leaflet well beyond the reasonable level for the enthusiast'.

The cost of GMM SML 22 at the time of publication was 78p. Doubtless this will have risen since due to inflation, but I am sure the price is still within a 'reasonable level'.

The basic reasons for the ability of the Meccanoman's Club to produce Supermodel Leaflets of reasonable quality and prices were the availability of a skilled draughtsman and the use of inexpensive mimeographing. I have long held the view that we (as enthusiasts) have been deprived of good model plans largely because of adherence to the tradition that we must have highly professional products beautifully printed on glossy paper, after the fashion of the pre-war leaflets.

The Meccanoman's Club broke with this tradition and, during it's period of existence, published no fewer than 56 leaflets at regular intervals of two every quarter. This compares favourably with the 37 published by Meccano, and the standard of the models described is quite high.

The lesson to be drawn from all this is that the Meccano fraternity can be well served by a more utilitarian approach. For the mass market, the high quality production is a necessity, and is financially viable. But for the smaller market represented by the enthusiast, less plush methods must be used. Much excellent material is being published by the various Meccano clubs in their newsletters, using mimeograph or copying procedures that lower outlay.

I am glad to see some of this material being copied on the pages of the 'MM', for example, 'A Case For Improvement' on page 36 of the January issue. There is no reason why this should not be extended to include some of the models described in the club newsletters.

DR. KEITH CAMERON.
Florida, USA

(Both our correspondents are of course absolutely correct in pointing out the error in the reply to M. Jowett's letter in the January issue. However, I feel that the main point of Mr. Jelley's response is still valid, the GMM leaflets were produced by enthusiasts for enthusiasts, using a less expensive method of production, primarily as a service to the advanced modellers in the Meccanoman's Club. Mr. Jelley's point that, to produce a set of leaflets similar to the pre-war Binns Road SML's, would today be prohibitively expensive, is quite correct.

Costs of photographic print retouching alone are very high, and along with all the other high costs involved, make a 1979 set of SML's an impossibility. A very rough calculation tells me that, were such a set of leaflets available today, depicting new models and covering a range of 40 separate advanced constructions, it would cost at least £60 for the full set. Would you be prepared to pay that?

Dr. Cameron's suggestion concerning the less expensive methods of duplication being acceptable to advanced enthusiasts is very thought-provoking and I will look into this matter further. In the meantime, I would value the opinions of other Meccano Magazine readers on this subject.–ED.)

LOCOMOTION

Dear Sir,

I am glad to see that the Meccano Magazine contents are maintaining the previous high standard and that we are now receiving a magazine of handsome appearance also. Mr. Beadle's 'Locomotion' was in my view a particularly good 'catch' and I hope that you will be able to obtain details of other quality models from similar sources in the future.

A rather glaring error shows up in the photographs, (which I didn't notice when I saw the model itself), and it concerns the coupling rods on opposite sides of the locomotive. These are depicted as being in line with each other, instead of at an angle of 90 degrees as is usual. It is not surprising that Mr Beadle used a Chain drive to connect the axles as well. The problem is easily cured by putting the two return cranks on different axles, instead of both on the front one. I have found several pictures of the engine in various publications and those that show the left hand side depict the return crank on the rear wheel.

The most detailed description that I have found was in Mr. J.G.H. Warner's 'A Century of Locomotive Building by Robert Stephenson & Co.', (recently reprinted by David & Charles Ltd.); which reproduces contemporary drawings of both sides of the locomotive in addition to quoting a lengthy description. This makes quite clear the fact that the motion is arranged as I have described above. It is possible that Mr. Beadle's model is a correct representation of the original when displayed at Bank Top Station. It would appear that the Locomotion was incorrectly reassembled before being returned to her plinth after the centenary celebrations in 1925.

Regarding Linsay Bond's interesting article and Mr. Wright's comments, I believe that the confusion over part colours arose because of the sale in 1946 and 1947 of parts held in stock during the war, duly repainted, and, in some cases, re-stamped with the 'Meccano Made In England' mark. I have a large number of parts, still identifiable as having been purchased at that time, which appear to be examples of this. Manuals of this period were sometimes indistinguishable from their pre-war counterparts, particularly as their covers are often missing. These features, together with the efforts of re-sprayers everywhere are likely to cause much confusion.

Yours sincerely,
R. WATSON,

OUT OF TOUCH

Dear Michael,

First off, I wish you the best of luck with your taking on the editing of the Meccano Magazine.

For some time I have been puzzling over the question of 'what is the missing element in present-day Meccano that was there in the peak days of the '20's and '30's?' Reading Brian Wagstaff's article in NMMG Newsmag No. 9, I believe he may have hit on a major element of the missing link,—Frank Hornby's philosophy. Perhaps some of this philosophy should be considered for use in the Meccano Magazine as it moves forward under your leadership.

Since so many Meccano modelling mechanical problems have been solved so many times, in different ways and using different parts, the solutions have become so highly refined as to be out of touch with today's youth. Perhaps today's challenge lies not in the strictly mechanical field, but in the electro-mechanical area. Anybody can easily obtain 'perf-boards' at any electronic supply house, cut them to Meccano dimensions and drill edge holes to match Meccano. (It would be very convenient and probably preferable to purchase them prepared, but since they aren't available the only alternative is to make them.)

The other problem, perhaps more difficult, is to work out a list of standard electronic materials that are readily available and some simple instructions on their use. (The Meccano range of electronic parts that was marketed a few years ago doesn't count as they are not now readily available.) As Brian Wagstaff indicated in his article, the possibilities are mind boggling. Can you imagine a magnetic tape programmed microprocessor controlling all of the various mechanisms of a complex model in response to a signal initiated by a keyboard matrix? (As an example, I have just described the basic control system for a modern electric elevator.)

No doubt some purists would object because the electronic elements would not be manufactured at Binns Road, Liverpool,—neither are the wood bases they sometimes mount their display models on! It's not the modellers' fault that, in my opinion, Meccano has fallen behind our electro-mechanical times. Reading and re-reading everything I can get my hands on about Frank Hornby, I believe that this is the sort of material he would include in today's Meccano Magazine if he were still in control. To cite as a precedent, one has only to look at the competitions of the 'teens and note the parts that added to the system as a result.

One of the finest example of this is in the case of the first Motor Chassis which pre-dated the introduction of suitable wheels but must have been a major factor leading to their development. Unfortunately my knowledge of electronics is too limited for me to make any attempt at developing any electronics lists or instructions, but there must be other Meccanomen, more knowledgeable in these matters who would be willing to initiate such an adventure.

Best wishes as you tackle the Meccano Magazine!

Yours sincerely
BOB BOWLEY
Des Moines, Idaho, USA.

CALENDAR

Dear Sir,

Georges Gombert's Perpetual Calendar Unit featured in that long awaited April/July/October 1977 MM is a most ingenious piece of mechanism and I congratulate him on his fine work. I attempted to reproduce it from Bert Love's description, but got lost, so I simply went my own way and came up with something which appears to me to be far less complex. The operation of the three dials and the twelve-sided cam remains the same and the modifications are thus:

Referring in each case to the A/J/O/1977 MM; the trip lever, which is actuated by one of the four Bolts on the date drum, is supported on a vertical Axle Rod as illustrated and which I shall refer to as 'A', and this in turn is carried on a horizontal Rod 'B', precisely as in Fig. 2, but forget the Contrate Wheel, etc. Rod 'B' carries two further approximately vertical Rods 'C' and 'D' and is retained top to front by Spring Cord so that when the trip lever is depressed, it, and the three vertical Rods, will all move towards the front of the unit.

Shorten Rod 'A' to about 3" and top it with a Handrail Coupling, omitting the Collar with Threaded Pin and associated Pawl on the layshaft. On one side of it's round head pivots the trip lever, and on the other side comes my little piece. I had got sufficiently advanced to realise that when the trip lever moves forwards, the layshaft carrying the Pawls is also required to move to the right, and vice versa, so why not simply couple the two with a Bell Crank? The Bell Crank must have 1:2 ratio arms as the layshaft moves consid-

Continued top of next page

POSTBAG—continued

erably more than the trip lever, and the Crank is positioned so that a connecting rod links it's shorter arm to the other side of the Handrail Coupling.

Consider, now, the operation of the layshaft on the eve of the final day of, say, a 30 day month. The first half-revolution advances the date drum fully to the 31st and the locking rod retains it there exactly as it has been doing throughout the month. This last advance has caused the 30-day Bolt to depress the trip lever thereby allowing Rod 'B' to rotate top to front under the action of the Spring Cord, Rod 'A' moving the layshaft, via the Bell Crank, to the right.

To the left-hand of the layshaft is fitted a Short Coupling secured by means of a standard 7/32nds" Bolt. The horizontal extension of the Bell Crank which is associated with the locking rod rests on this coupling, and when the layshaft is moved to the right the Bolt takes up a position directly under the arm of the Crank. Thus, in the second half revolution of the layshaft whilst the Pawl is doing it's thing, the Bolt raises the locking rod, thereby permitting the date drum to rotate back to the 1st. All the remains to be done now is to restore the layshaft, the locking rod and the trip lever, and this is accomplished by rotating Rod 'B' top to rear.

Fig. 4 shows a Rod running from front to back. Rearrange this so that at the back it is attached 3" up Rod 'C' whilst at the front is is lowered to the first hole up from the pivot point of a 3" Perforated Strip arranged as shown. As the drum restores, a Collar strikes the Strip, pushing it rearwards. This Collar is carried on an Axle Rod journalled in a hole of each Hub Disc, one hole from the outer slotted hole. Rod 'D' which is at the extreme left hand end of 'B', is adjusted so that upon restoration it strikes against the hanging portion of the Bell Crank causing the locking rod to drop in time to halt the date drum just as the 1st appears at the window. With all working smoothly, not much torque is required from the Tension Spring, somewhat less than half a turn, residual.

I soon gave up struggling to adjust the trip lever Bolts in the Flat Girder, and fitted one to the Hub Disc and the other three to the end holes of three 2" Perforated Strips, all secured to one of the Bolts holding the Bush Wheel. I also rejected George's governor in favour of the far simpler Plastic Plate / 3-Way Rod Connector type used for the Clock Kits.

I discovered two errors in Bert's article which could lead to confusion, both in the final column of page 55. Firstly, 'the cam is turned via a Small Contrate Gear and 50-tooth Pinion (1:1) . . .', and this should read, '25-tooth Pinion'. Secondly, the second lever (not cam shaft) must ride against the bare shaft for the 28 day month and against the Collar for the 29 day run and not the other way round.

Yours sincerely,
COLIN COHEN.
Cape Town, South Africa.

MECCANO CLUB ROUNDUP—continued

Life Honorary Member Roger Le Rolland, with pictures of several of his models and dozens of column inches of biographical text. We always have encouraging news from Roger's direction, and with his many public appearances he must have done wonders for he image of Meccano over the years.

On the brink of yet another busy exhibitions season, we find our ranks increased by the following recruits: Adults, Peter Ingarfill and Wallie Hinson (Wallie should have been announced when he joined us, last July) and boys, Malcolm Pratt of Luton, Christopher Walton (5) of Stevenage, and Mark Roane of Stevenage.

It all happens at the SMC, and if you want to get in on the action write to Dennis Higginson at 7 Buckthorn Avenue, Stevenage, Herts, England. We all wish Dennis a very big improvement in health in 1979, and hope he can lead the club as efficiently through 1979 as he has through the last ten years.

Bernard Dunkley

SOUTHERN CALIFORNIA MECCANO CLUB

The Southern California Meccano Club has recently welcomed Edward Furness of London, Ontario, as a new member. Dr. Juan C. De Tata, currently stationed in Germany has been our roving ambassador in Europe, having made trips to Liverpool, Zurich, Paris and Barcelona this last Fall and Winter.

Robert Bowley of Des Moines, Iowa, spent a very busy November at the Center of Science and Industry at that city, demonstrating models that his group of Meccano enthusiasts had put together and answering questions about them and Meccano in general.

The Club's lending library of model plans was enriched by Jack Taylor's photographs of his Disneyland Bobsled ride; and Keith Cameron's instructions for his Steam Locomotive of the Vitznau Rigi Rack Railway, plus photographs and instructions for his Ruston-Bucyrus Excavator.

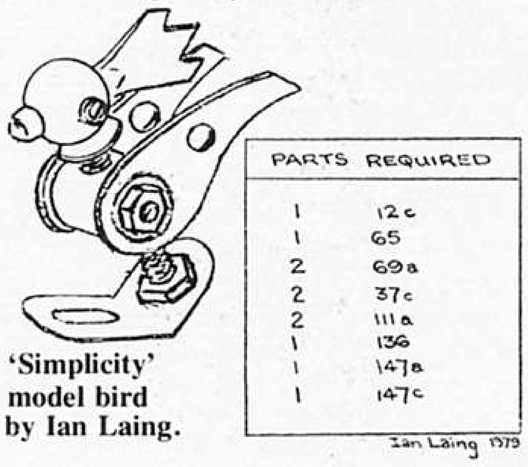
The Winter 1979 meeting of the Club was held at the residence of Clyde Suttle, Corresponding Secretary, on the afternoon of 6th January 1979. The President, Anton Calleia, was unable to attend due to him having moved to a new residence. The move had originally been scheduled for Thursday but due to heavy rain on Thursday and Friday, Anton had to move when he could. R. de Sobrino and J. Van der Ploeg flew down from the San Francisco Bay area for the meeting.

July 7th and October 6th are scheduled for the next meetings of the Southern California Meccano Club.

Clyde T. Suttle
Corresponding Secretary; SCMC.
6062 Cerulean Avenue
Garden Grove California 92645 USA

THE TRANSVAAL MECCANO GUILD

The Transvaal Meccano Guild has held three meetings since the Hobbies Fair which was reported in the October 1978 Meccano Magazine. At the September meeting we celebrated our 6th birthday with a cake decorated with parts donated (temporarily) by our chairman, Peter Matthews. Modelwise the meeting was disappointing, probably an after-effect of the effort put into the Hobbies Fair exhibit. The November meeting was our annual meeting, held at Jaap Kies's house in Pretoria. There was so much talking at this meeting that two competitions intended for this occasion were postponed until the November meeting, held at our usual venue in Johannesburg. One competition was to look at a small loco and write a parts list, a limit of one minute being put to the observation time. Trevor Attwell won after a tie was decided by flipping a 38. There was a most gratifying response to the simplicity model competition, with 25 models being entered. A great deal of inspiration and ingenuity was evident.



'Simplicity' model bird by Ian Laing.

Trevor's model bulldozer, with Sprocket Chain tracks and a driver with a Socket Coupling body, Rod and Strip Connector arms and legs and Hand Rail Coupling head, was voted the best model. A close second was a really simple and effective model bird, sent in my Ian Laing, one of our country members from Bloemfontein. It was accompanied by a drawing and parts list, a copy of which is reproduced. Third was Paul Hatty's tractor and trailer using ½" Pulleys as front wheels and universal gears as the rear.

Among the other models were a 0-6-0 loco with large Washers as wheels and Couplings as the boiler, a jet plane using Couplings as the body and 1½" Strips to form swept back wings, a simple but effective telephone set; an Xmas cracker made from two Socket Couplings and a clown making use of several Multikit parts. There was a tricycle and a motorcycle and a side-car using ½" Pulleys as wheels. We had a dragonfly with Propeller Blades as wings and Wire Hooks for legs; a centipede with a body made from Couplings and Screws as legs, and a dog with a Coupling body and Rod and Strip Connector legs. Also to be seen were a penny farthing with a spoke front wheel and Multi-Purpose Gear with a 1" Rubber Ring at the back; a lawnmower with a couple of dozen Fishplates as the blade, and a minute cannon using Collars as wheels and a Right Angle Rod and Strip Connector as the wheels. Slightly more elaborate (but how does one define a 'simplicity' model?) was a windmill and water tank and a wood-burning loco using Multikit Steering Wheels as driving wheels.

At our next meeting the competition is for a vehicle built with the following constraints:—

(i) It must have 4 wheels on the ground.

(ii) It must use neither electric or clockwork motors nor may it be steam driven.

(iii) It may contain no electrical parts (eg coils or solenoids).

(iv) Not more than two standard Driving Bands may be used.

(v) No pyrotechnic device may be used.

(vi) All models in the competition to start behind a board. When the board is removed the model must start moving without assistance. The model travelling the furthest will be the winner. Good luck to all potential inventors of perpetual motion devices, with which to solve the world's energy crisis.

Jacques Rossouw, Hon. Secretary,
Transvaal Meccano Guild
66 4th Avenue, Parktown North,
Johannesburg, 2193, R.S.A.

USA MIDLANDS MECCANO CLUB (IN FORMATION)

On 17th March 1979, a local club approached becoming reality at a meeting at my home in Des Moines, Iowa. Only shortage of time prevented the finalising of an organisation.

The meeting followed the completion of the 1979 'Sky's The Limit' model engineering workshop at the Des Moines Center of Science and Industry, on the 3rd March 1979. Eight boys participated in the workshop, which featured a programme of six weekly sessions covering metal construction systems topics; including origins, construction, sources for materials and literature, clubs and exhibitions. A portion of each session was devoted to reviewing the boys' models.

At the final session, some very fine constructions were displayed. David Power brought two racing cars and a lorry designed to transport one of them. Marshall Metzger displayed a windmill and a tipping lorry.

Special thanks are extended to AVA/Airfix of Hewitt, Texas, (US importer of basic Meccano sets up to No. 3), for providing sample copies of Meccano Magazine. Kent Synder/Goodthings of Palo Alto, California, (the only active US dealer in Meccano spares, larger outfits and extension sets) provided two Meccano Hand Generators for prizes, and RS Models of Calgary, Alberta, Canada, supplied composite catalogues showing the differences between various systems. The prizes were awarded on the basis of drawings, to avoid possible conflict between the commercial interests of competitive systems, and the Science Centre's educational function. The lucky boys were Marshall Metzger and Craig Wood.

Tentative plans for the Des Moines Centre of Science and Industry include a Meccano and allied systems exhibit, starting about the 10th November 1979 and running for four weeks. Photos of Meccano Exhibitions in other parts of the world, and of individual models, are badly needed to supplement the limited number of models available for display. Meccano outfits in the area are sufficient only to construct one model larger than a Set 10 example, along with some additional models from Set 8 and smaller outfits. Any photos loaned to me for this purpose will be returned, and postage costs paid both ways.

R.E. (Bob) Bowley
3916 78th Street
Des Moines, Iowa 50322
United States of America

'EXTRA'

Mr Geoff Coles, Hon. Secretary of the North Midlands Meccano Group, an energetic and enthusiastic Meccano Club based near Nottingham, has supplied some news concerning the Group's involvement in the forthcoming Newark and Notts. 'Yesteryear' Rally 1979.

Regular readers of 'Club Notes' will know that, despite the unpleasant weather experienced at the 1978 Rally, the NMMG put on a first-class display and created a great deal of interest. The Rally organisers were very appreciative of the sterling efforts of the NMMG constructors and lost no time in inviting their participation for the 1979 Show.

This will be a two-day event, held on Saturday the 30th June and Sunday the 1st of July 1979. For those who wish to attend the Rally for two days the facilities include a camp & caravan site. The Meccano model display will hopefully surpass even last year's, and will be situated in a permanent building with adequate power points etc.

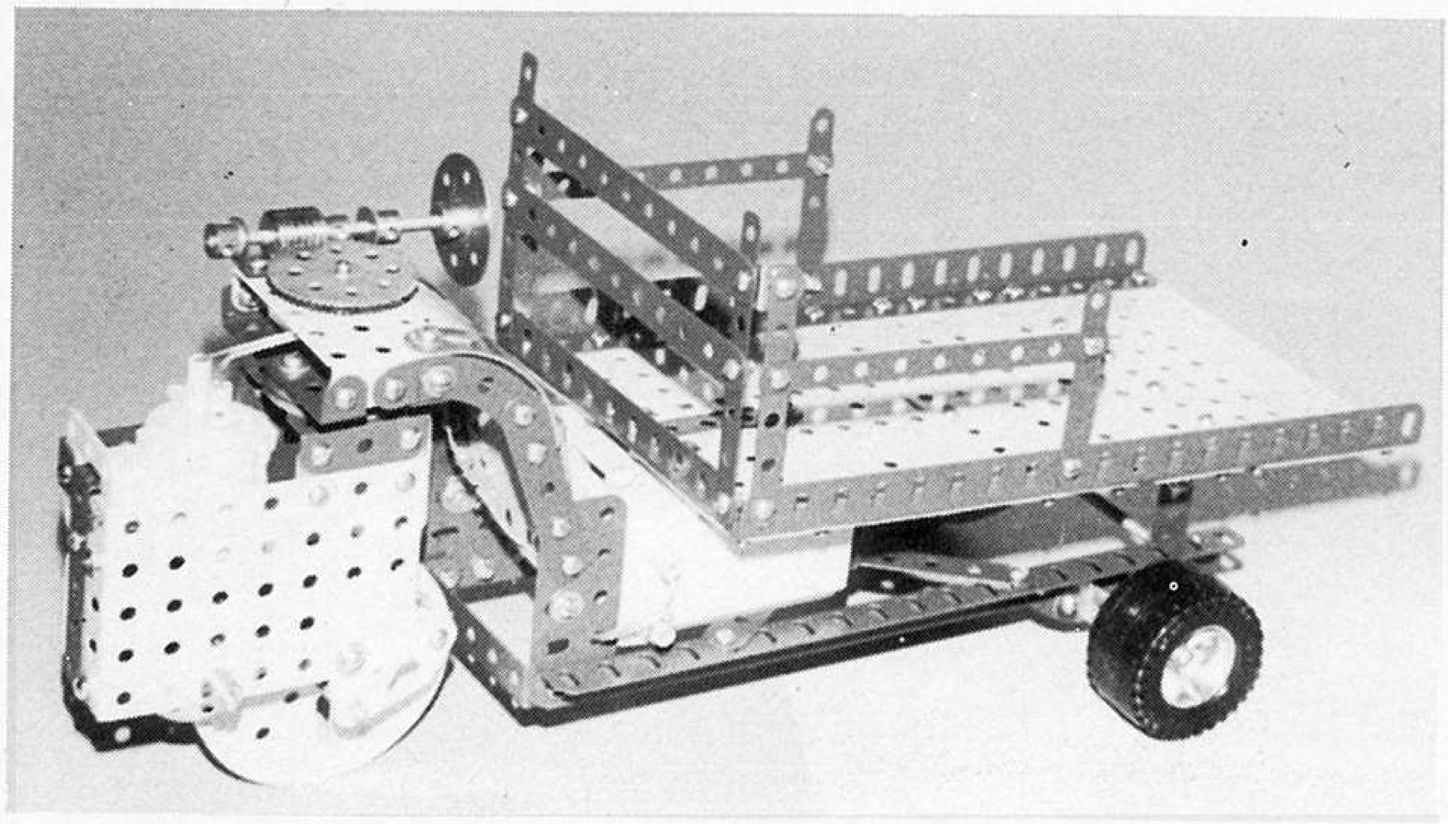
Held on the Newark and Notts. Showground, Winthorpe, near Newark, the 'Yesteryear' Rally affords the finest opportunity to view the Group's advanced Meccano models, in addition to 'taking-in' the many other attractions of the Show. If you'd rather exhibit rather than just look, a line to Geoff Coles, Secretary; North Midlands Meccano Groupl. 'Little Court' Bleasby, Notts, will be sufficient to secure full details of membership, and if required, extra information concerning the 'Yesteryear' Rally.

The Town and Country Festival, held at Stoneleigh, near Kenilworth, Warwickshire, will feature the usual display of advanced models built by members of the Midlands Meccano Guild. This event has been extremely well-attended in the past, the ever growing, (or so it seems!) Meccano section proving a very popular attraction. Held on the 25th, 26th and 27th of August 1979, the Festival features a host of other attractions, making an ideal outing for the whole family. Make a note of it in your diary!

'TWO FROM FOUR'

TWO entirely new models built from the current series No. 4 Meccano Outfit, designed, constructed and described by Dr. Keith Cameron of Florida, U.S.A.

TIPPING MOTOCART



LEFT-hand view of completed model.

THIS model closely follows the lines of the 1950 Dinky Toy No. 27g. In a similar manner to the prototype, it is powered by a drive to the large single front wheel, which is steered by an operator standing on the chassis. This is connected to the steering head by a 'swan neck'. The model is self-contained, the motor deriving it's power from a battery box on the frame, under the tipping body.

FRONT WHEEL UNIT

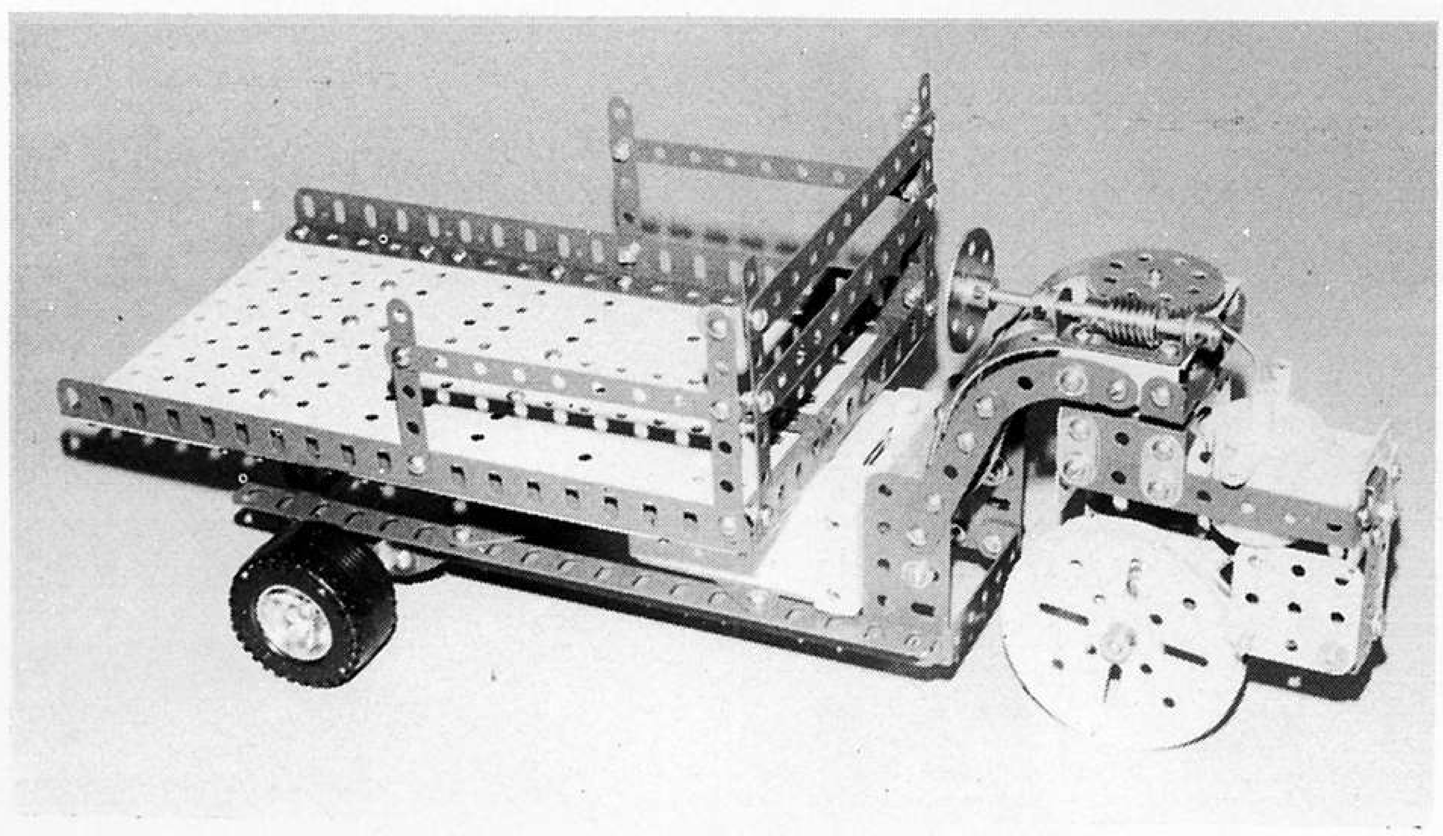
A 4.5 volt motor, (Junior Power Drive Unit Mk. II), with a ½" Pinion on it's drive shaft, is bolted to the inner face of the upper two holes of the front flange of a 3½" x 2½" Flanged Plate, spaced by a washer on each Bolt. A vertical 2½" x ½" Double Angle Strip is also bolted to the motor base plate and lies parallel to the flange, it's upper lug contained within the cavity of the motor base plate. This Double Angle Strip is also affixed, below, to the flange of the plate by a 1" Corner Bracket, (not shown in some illustrations). A lower Bolt secures a 3½" x ½" Double Angle Strip by it's front lug, it's rear lug being bolted to the rear flange of the plate by a Bolt that also passes through the centre hole of a Double Bracket.

Flat Trunnions are fixed to the lugs of the Double Bracket and, these are further secured by means of Bolts passed through their formed holes to the 3½" x ½" Double Angle Strip in the case of one, and to the 3½" x 2½" Flanged Plate on the other; in such a way that a 3" Pulley on a 1½" Axle Rod journalled through the apex holes just clears a 2½" Axle Rod journalled through the third hole from the front of the Double Angle Strip. This 2½" Axle Rod carries a Contrate Gear between the Flanged Plate and the Double Angle Strip, and this engages with the ½" Pinion on the motor shaft. A 3½" x ½" Double Angle Strip is bolted to the motor base plate, and is fixed by it's rear lug to a 1½" x 1½" Flat Plate bolted to the rear flange of the 3½" x 2½" Flanged Plate.

A 1½" Pulley, boss down, is bolted to the centre elongated holes of two 1½" Angle Girders, using washers to ensure that the bolt shanks do not project beyond the Nuts on the upper surface of the 1½" Pulley. The 1½" Angle Girders are fixed by means of four Fishplates to the Double Angle Strip and the Flanged Plate. A 2½" Axle Rod is then fixed using two Grubscrews in the boss of the 1½" Pulley, position the Pulley so the Grubscrews are accessible.

The large front wheel is represented by a 3" Pulley on a 1½" Axle Rod, secured by a Collar and spaced by three Washers, in the apex holes of the two Flat Trunnions. This is driven by a 6" Driving Band in it's groove and this is passed over the 2½" Axle Rod carrying the Contrate Gear, powered by the ½" Pinion on the motor shaft. The gearing can then be concealed by a 1½" x 1½" Flat Plate passed over the 2½" Axle Rod and secured by means of a locknutted 3/4" Bolt to the forward hole of the lower 3½" x ½" Double Angle Strip.

GENERAL view of the right hand side of the Tipping Motocart. Note that the tipping body rests on the battery box.



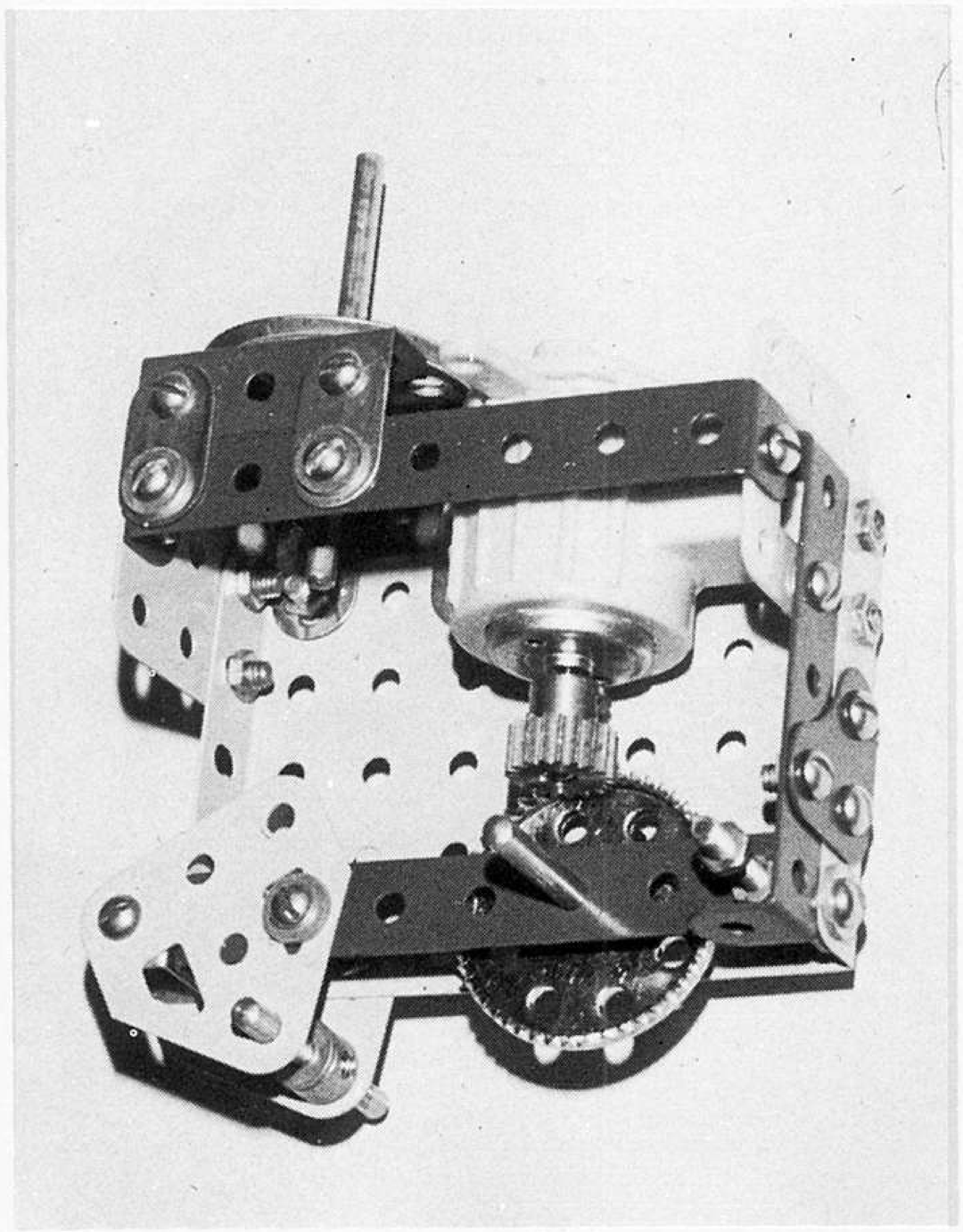
STEERING HEAD

This comprises a 2½" x 1½" Flanged Plate, to the flanges of which are bolted two 2½" x ½" Double Angle Strips. A 1½" Pully, boss up, is affixed to the centre holes of these two Double Angle Strips in the manner previously described, ie using Washers for spacing purposes. To the flanges are also affixed, two 2½" Stepped Curved Strips, by their end two holes, and to the upper surface of the plate is bolted a 1½" x ½" Double Angle Strip.

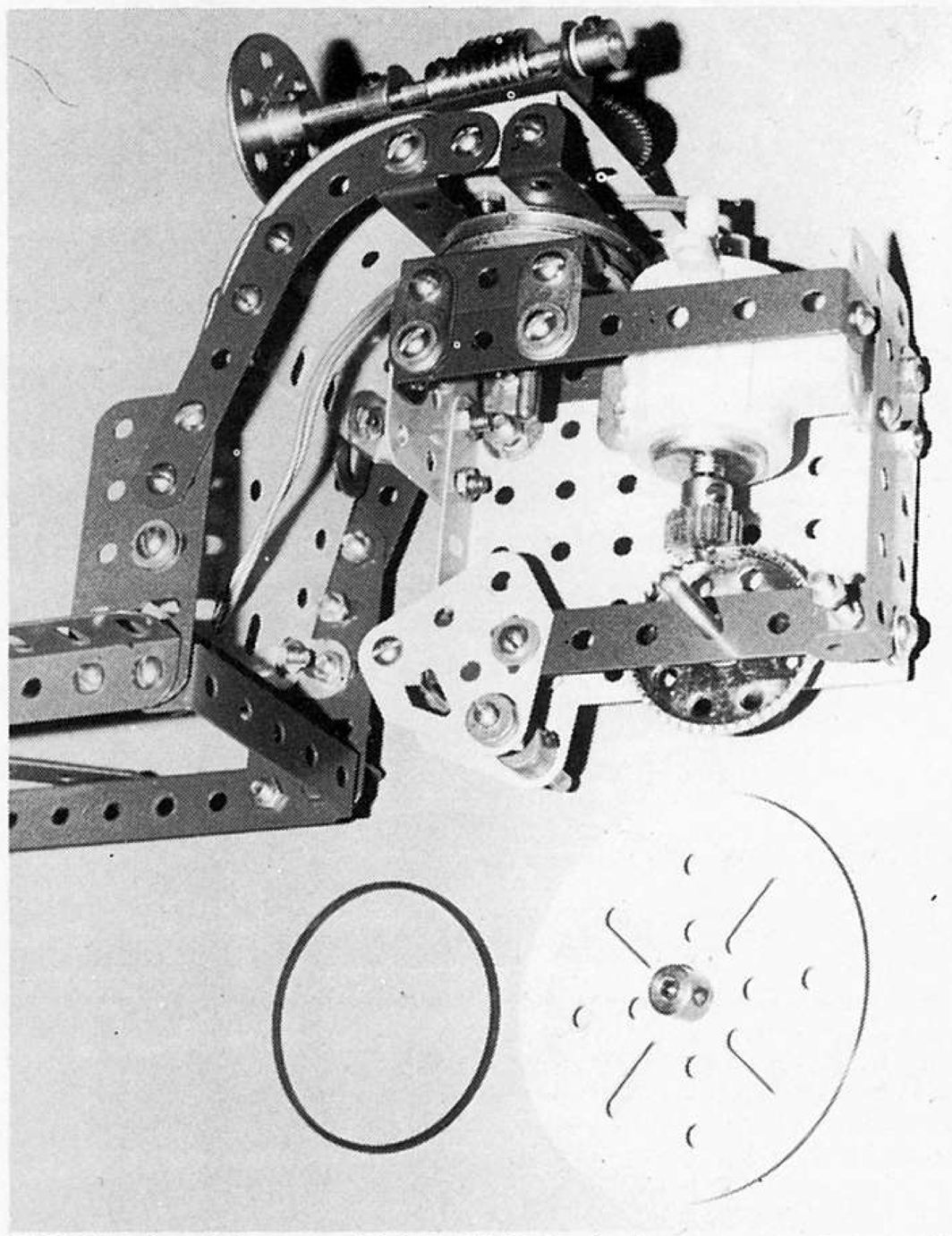
This holds a 3" Axle Rod, journalled through it's lugs, and carrying a Worm Gear, two Collars, spacing Washers and a Bush Wheel. To the rear upper surface of the 2½" x 1½" Flanged Plate are secured two Formed Slotted Strips, bracing a 2½" x 2½" Plastic Flexible Plate, down and to the rear. These are extended below by another 2½" x 2½" Flexible Plate edged by two 2½" Perforated Strips and, above, by a 2½" Narrow Strip, the securing Bolts of which also hold ½" x ½" Angle Brackets.

These Brackets are affixed to the lower holes of the two 2½" Stepped Curved Strips, which are lengthened by 2½" Perforated Strips bolted at an angle to the two upper slotted holes of 2½" Flat Girders, secured below to the 9½" Angle Girders forming the main chassis members. A 2½" x ½" Double Angle Strip is used to provide bracing between the forward holes of the two 9½" Angle Girders at this point.

The 2½" Axle Rod, held in the boss of the front wheel unit 1½" Puliey, is passed through the central hole of the 2½" x 1½" Flanged Plate and the 1½" Pulley affixed to it. A 57t Gear Wheel is then attached by using two grubscrews, this engages with the Worm Gear on the steering shaft.



CLOSE-up of the motor drive unit showing careful positioning of two Flat Trunnions.



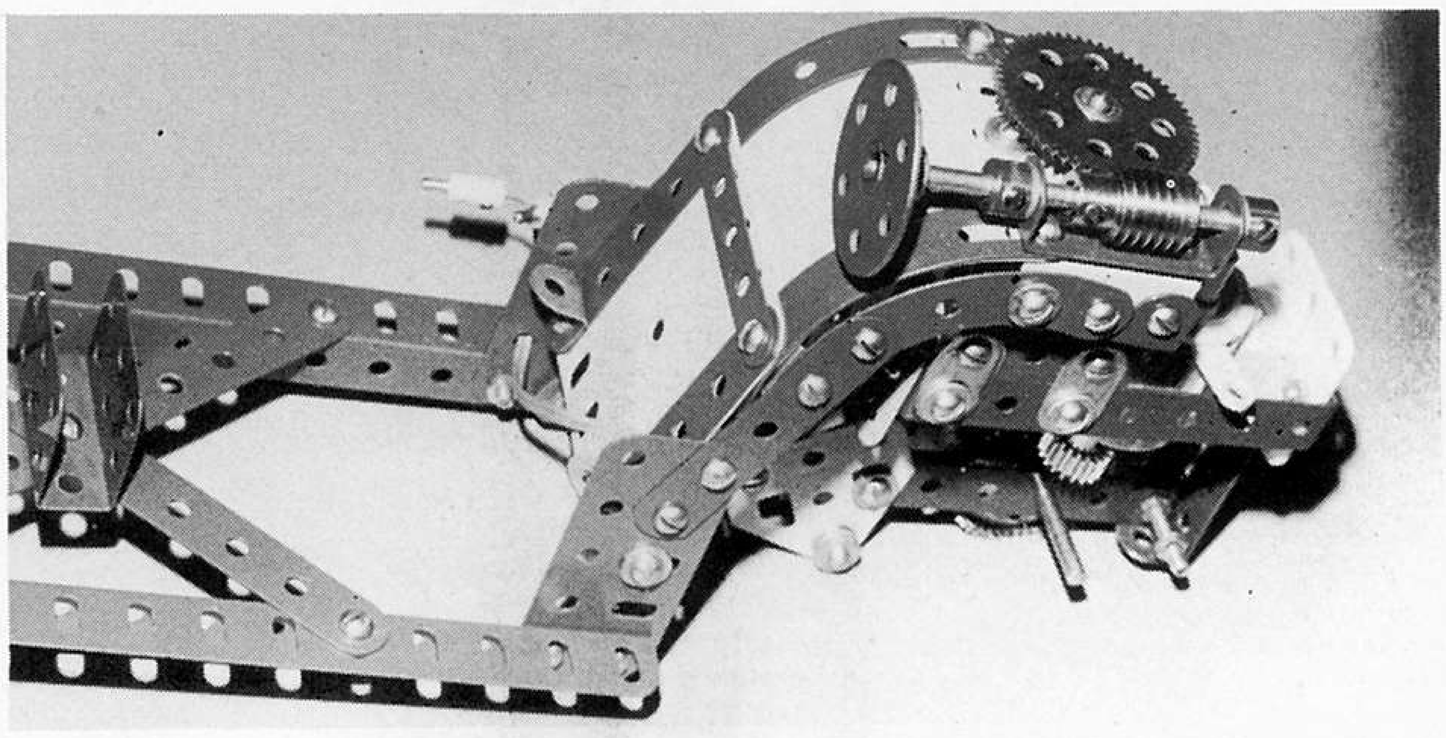
DRIVE unit and 'swan neck'. The 3" Pulley is shown separately to avoid obstruction of detail.

THE FRAME

The two 9½" Angle Girders comprising the main frame chassis members are braced by two 5½" Perforated Strips, crossed over. The road wheels are free to revolve on the shanks of two 1⅛" Bolts, lock-nutted to the centre holes of two Double Bent Strips, themselves held by two 2½" Stepped Curved Strips bolted to the rear of the frame, their rear holes secured by lock-nuts on a crosswise 3" Screwed Rod. A Channel Bearing is bolted to the point at which the two 5½" Perforated Strips cross.

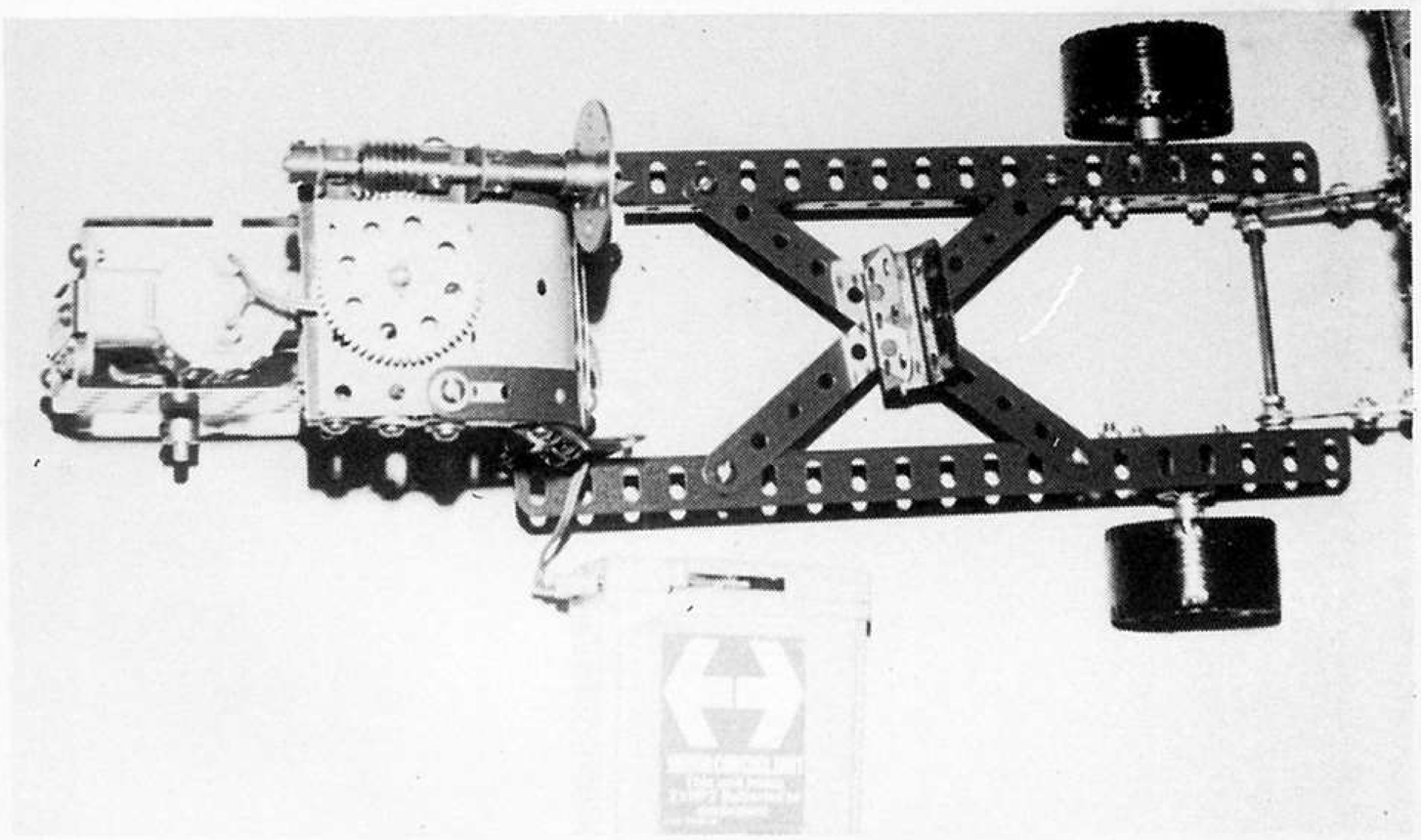
THE TIPPING BODY

The floor of this consists of, (from front to rear), two 2½" x 1½" Plastic Flexible Plates, two 3½" x 2½" Flexible Plates, (between these, a further 2½" x 1½" Flexible Plate), two 5½" x 1½" Flexible Plates, and a 5½" x 2½" Flat Plate, lined up as shown and braced on either side and in front by two 9½" Angle Girders and one 5½" Angle Girder respectively. Two 7½" Perforated Strips are employed to brace the underside of floor, and a 2½" Narrow Strip partly fills the gap between the four forward Flexible Plates.



VIEW from above with tipping body raised. The battery box fits in between the Channel Bearing supported on the crossed 5½" Strips, and the rear of the 'swan neck'.

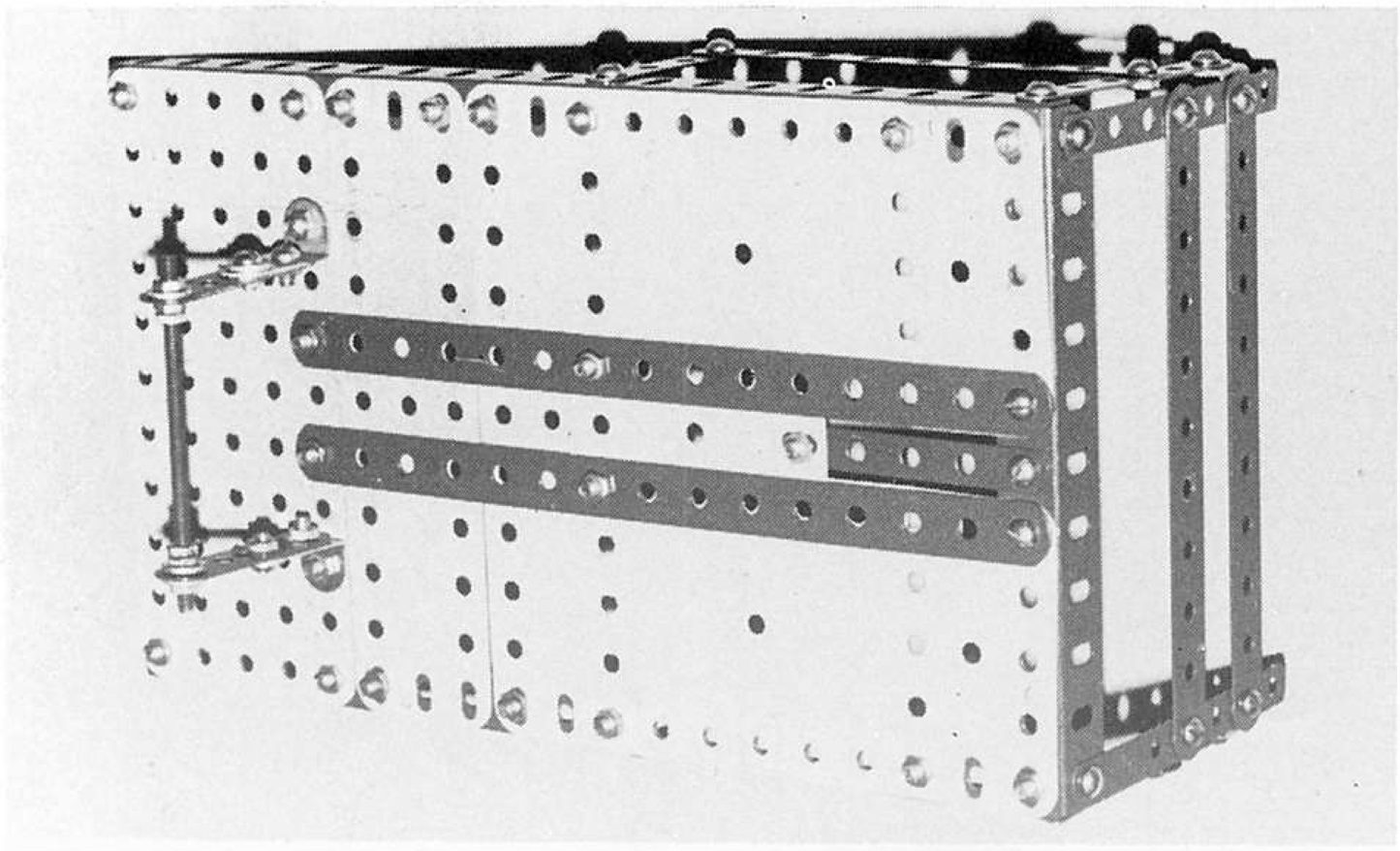
DETAIL view of rear of 'swan neck', note arrangement of steering column.



Two 2" Perforated Strips, fixed by two 1" x ½" Angle Brackets to the underside forward holes of the 5½" x 2½" Flat Plate, pivot by their lower holes on the 3" Screwed Rod connecting the rear of the two 9½" Angle Girder chassis members. Side and front framing for the tipping body is made up from 2½", 3", 3½" and 4½" Narrow Strips, two 5½" Perforated Strips and two ½" x ½" Angle Brackets.

OPERATION

A Battery Box will fit snugly between the Channel Bearing and the two 2½" Flat Girders on the chassis frame. Two wires connect the motor and Battery Box, these can be passed under the steering head.

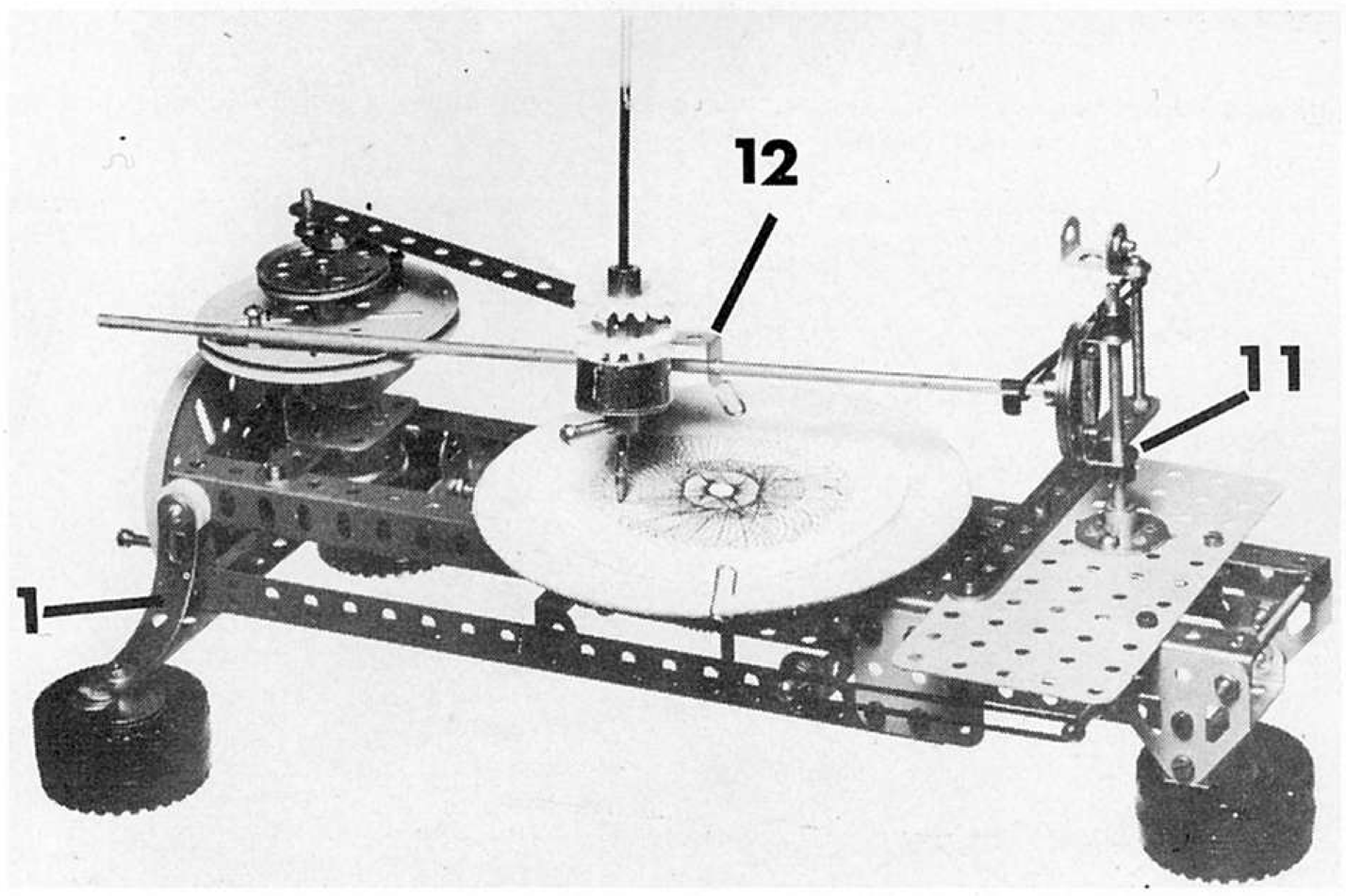


THE underside of the tipping body.

PARTS REQUIRED:

2 of No.	1B	1 of No.	53
4 of No.	2	4 of No.	59
4 of No.	5	1 of No.	70
2 of No.	6	2 of No.	74
4 of No.	8A	1 of No.	80C
1 of No.	9	4 of No.	90A
2 of No.	9F	2 of No.	103F
4 of No.	10	1 of No.	111
1 of No.	11	8 of No.	111A
6 of No.	12	2 of No.	111D
2 of No.	12B	2 of No.	126A
2 of No.	16A	1 of No.	133A
1 of No.	16B	1 of No.	160
1 of No.	18A	1 of No.	186A
1 of No.	19B	2 of No.	189
2 of No.	21	2 of No.	190A
1 of No.	24B	3 of No.	194
1 of No.	26	2 of No.	194A
1 of No.	27A	2 of No.	215
1 of No.	28	4 of No.	235
1 of No.	32	2 of No.	235A
110 of No.	37B	2 of No.	235B
125 of No.	37C	2 of No.	235D
36 of No.	38	4 of No.	611
2 of No.	45	1 of No.	618
1 of No.	48	1 of No.	11053
4 of No.	48A	1 of No.	136 24
2 of No.	48B	2 of No.	187C
1 of No.	51	1 motor and accessories	

MECCANOGRAPH



A GENERAL view of Dr. Cameron's Meccanograph, built from the current series No. 4 outfit, plus a 5" diameter design table made of thick card or wood, and two rubber bands.

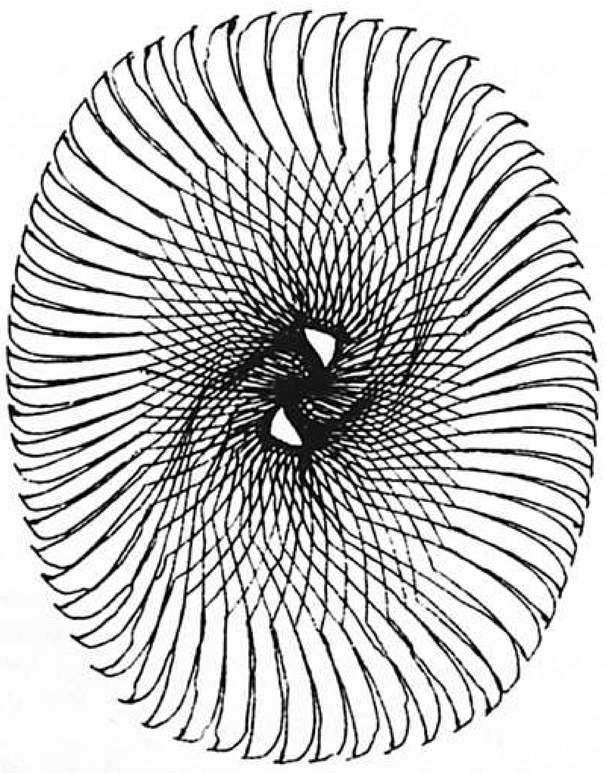
THIS machine produces a wide range of designs mostly resembling flowers. It requires a designing table which is easily made from ¼" plywood, although thick card was substituted for photographic expediency in the illustrations. Two rubber bands and ball-point pen refills are also necessary.

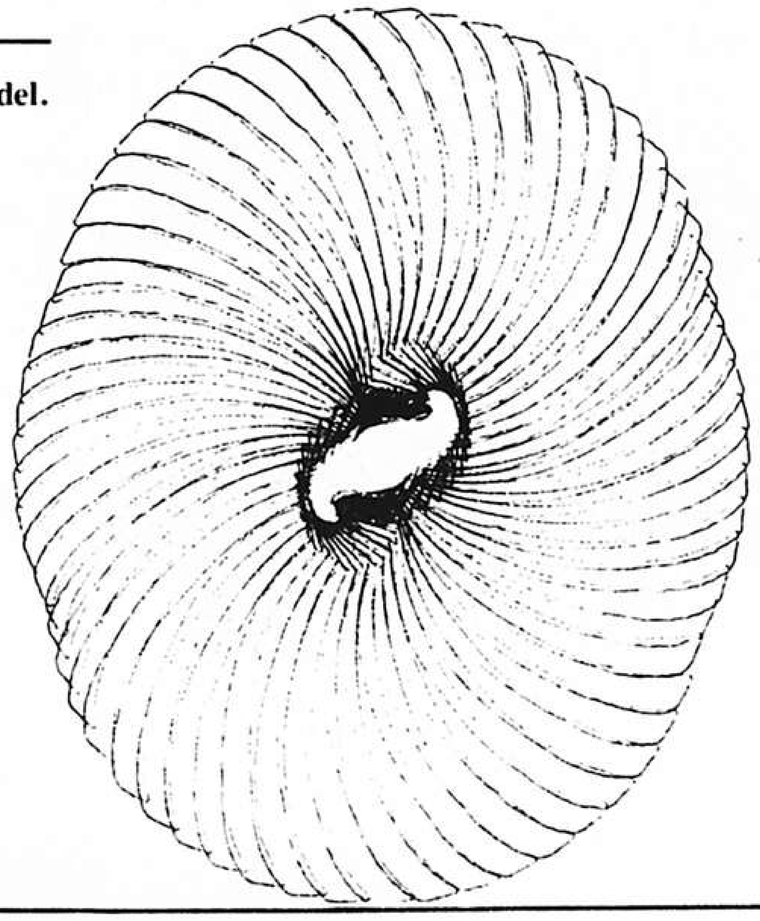
THE FRAME

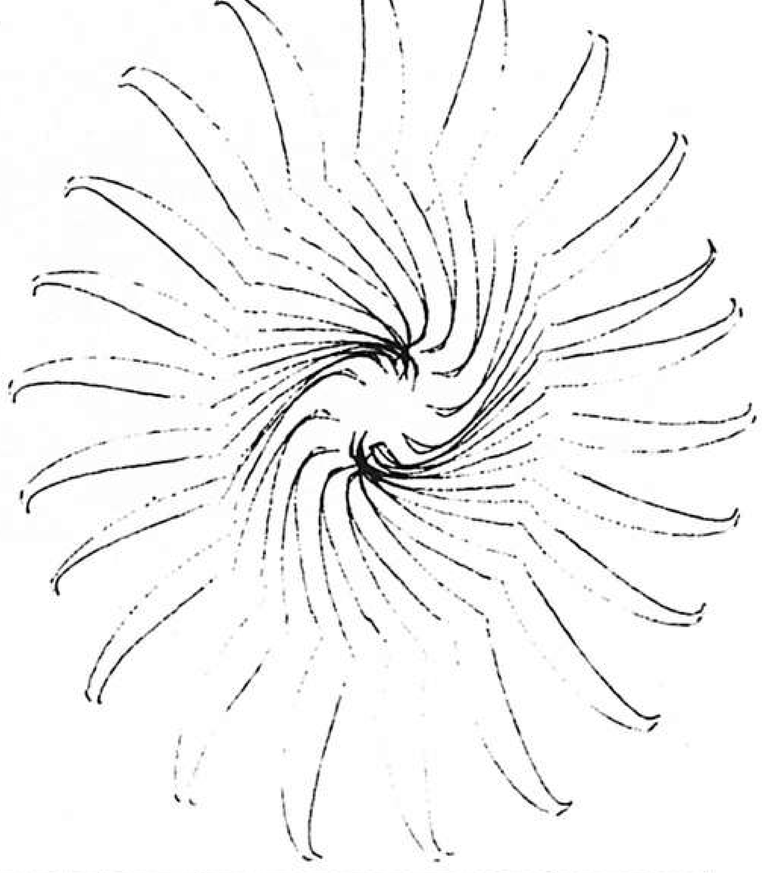
This is composed of four 9½" Angle Girders bolted at one end to a 2½" x 1½" Flanged Plate. All four Girders are secured to the flanges by their elongated holes, using a Washer in between for spacing purposes. The upper two Girders are held by ½" Bolts that first pass through a Washer, then the end slot of a 3" Formed Slotted Strip 1, and a ½" Pulley, remembering the Washer for spacing purposes between the 9½" Angle Girder and the 2½" x 1½" Flanged Plate.

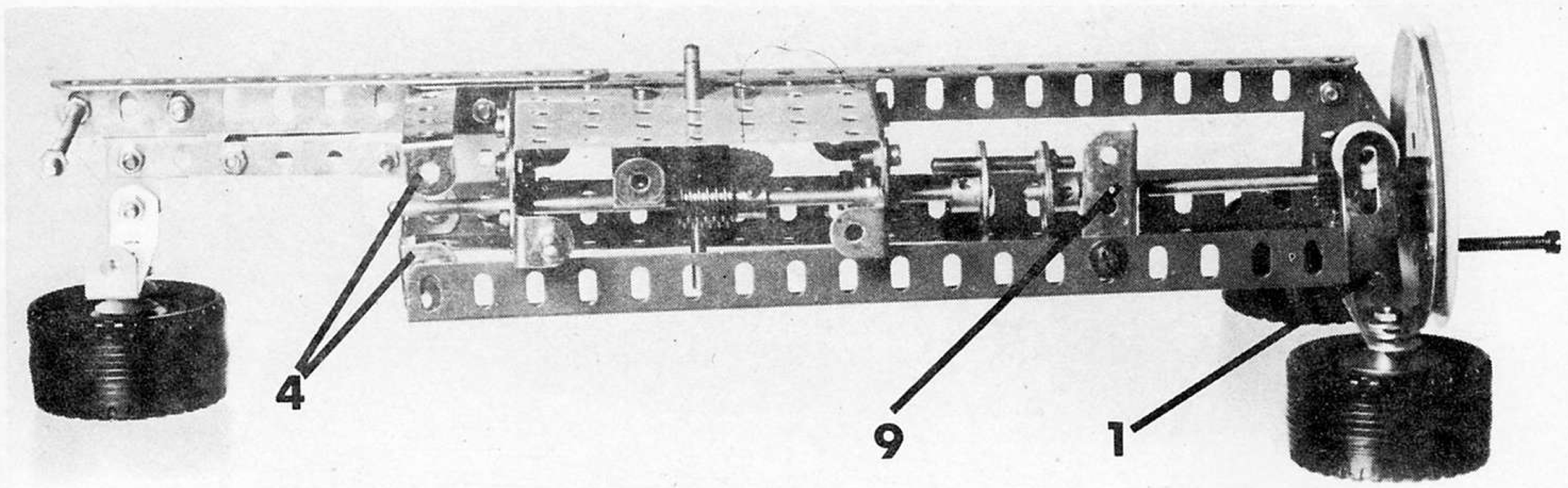
A 7½" Perforated Strip 2, is then fixed to the end round holes of the lower two 9½" Angle Girders, extending five holes either side. Two 'feet' for the Meccanograph are formed, each in the following manner. A 1⅛" Bolt is passed up in succession through a Road Wheel Centre, a hard Plastic Tyre, a 1" Pulley, the next to the

SOME of the fine designs produced on this model.









PARTIALLY dismantled view showing arrangement of table drive.

end hole of the 7½" Strip, the end slotted hole of the 3" Formed Slotted Strip, a Washer, and finally a Nut.

Note that the 1" Bush Wheel in each case is not employed here, it's use being reserved for a later constructional stage. The upper pair of 9½" Angle Girders are extended by a pair of 5½" Angle Girders 3, overlapping by four holes. The joins are secured by a 1½" x 1½" Flat Plate on each side, this Plate also holds the lower 9½" Angle Girder on each side, overlapping by two holes. Upper and lower Bolts on one Plate only, also hold two 2½" x ½" Double Angle Strips 4, arranged as shown. Do not finalise the framework assembly at this point because the table assembly has yet to be constructed, and then inserted between the 9½" Angle Girders.

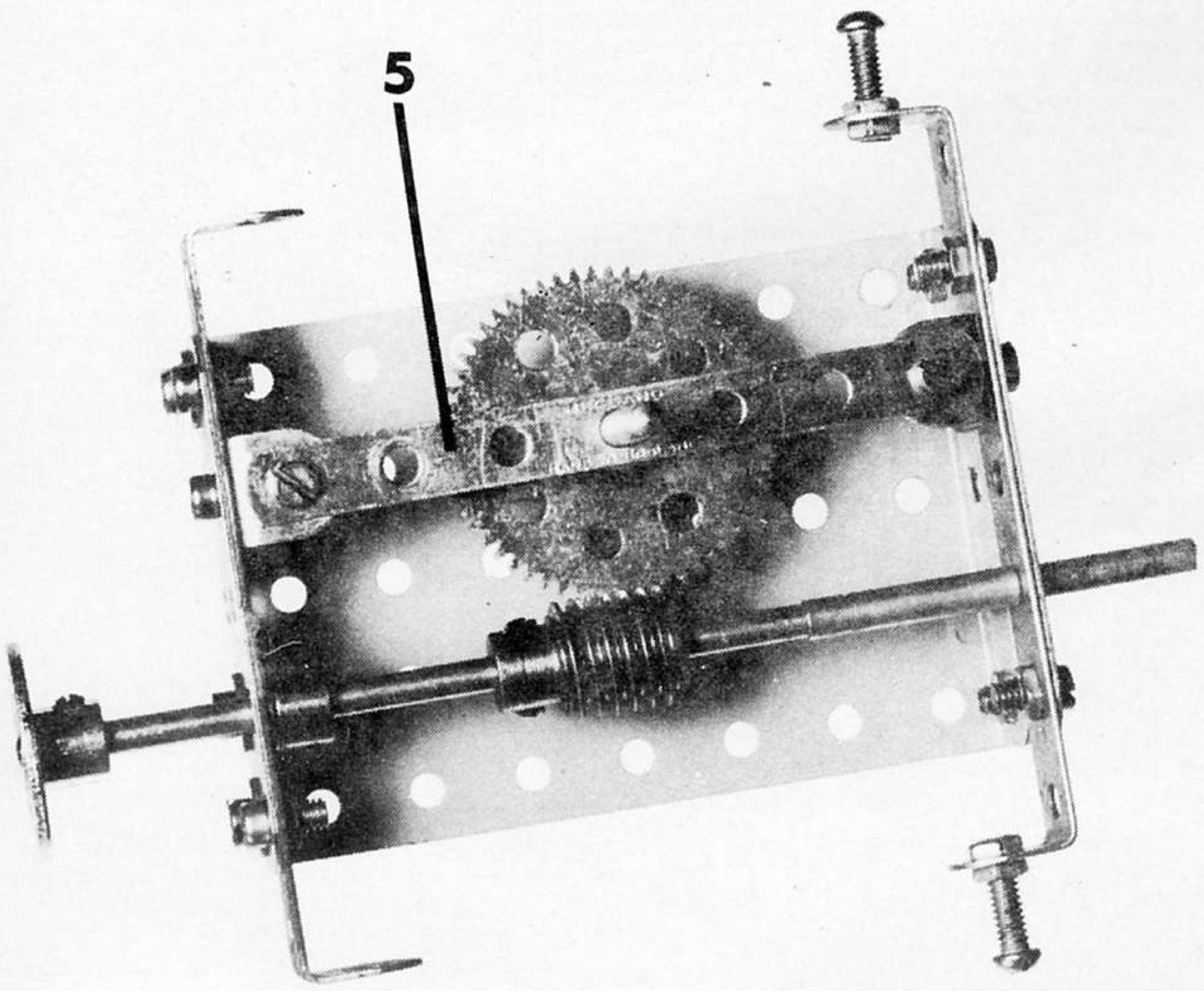
THE TABLE ASSEMBLY

Two 2½" Flat Girders are secured via their slotted holes to either flange of a 3½" x 2½" Flanged Plate. 3½" x ½" Double Angle Strips are then secured to the round holes of the Flat Girders, and two 1" x ½" Angle Brackets hold a 3½" Narrow Strip 5. A Double Bent Strip is bolted to the inside of the assembly, it's centre hole vertically in line with the centre hole of the 3½" Narrow Strip, through these holes is passed a 2½" Axle Rod, carrying a 57t Gear and a Washer. To assist easy sliding of this unit later on, the 3½" x ½" Double Angle Strips are arranged so that they butt against the flanges of the 3½" x ½" Flanged Plate, adjusting the 2½" Flat Girders accordingly. After this adjustment, the top edges of the 2½" Flat Girders should project slightly above the top surface of the Flanged Plate.

A 4" Axle Rod carrying (from left to right in the illustration), a 1" Bush Wheel, a Washer, a Collar and a Worm Gear, is extended by a 1½" Axle Rod held in a Rod Connector, and journalled through the 2½" Flat Girders and 3½" x ½" Double Angle Strips as shown. The Worm Gear engages with the 57t Gear. The entire table assembly is now placed inside the frame already constructed, the 2½" x ½" Double Angle Strips 4, now being bolted to the opposite Angle Girders to 'box-in' the table assembly.

The Bolts securing the Girders must be adjusted to allow easy sliding of the table assembly, adding extra Washers if necessary. However, best results will come if the movement of the assembly is not too loose.

UNDERSIDE view of table assembly. This is constructed as a separate unit and inserted into the main framework of the Meccanograph.



THE FRAME COMPLETED

The remainder of the frame consists of a pair of Flat Trunnions, a 3" Screwed Rod and another 'foot', made in a similar manner to the others except for the use of two ½" Pulleys and a ¾" Washer instead of a 1" Pulley. 3" Narrow Strips are added between the Flat Trunnions and the 1½" x 1½" Flat Plates. A 5½" x 2½" Flat Plate 6 is fixed to the upper 9½" Angle Girders as shown, with a stacked pair of 5½" Perforated Strips extending it's right-hand edge by three holes. A 2" Screwed Rod is lock-nutted to the end hole of this doubled Strip., this is turn supports a pen holder consisting of an Angle Bracket and a Double Bracket.

MECHANISM

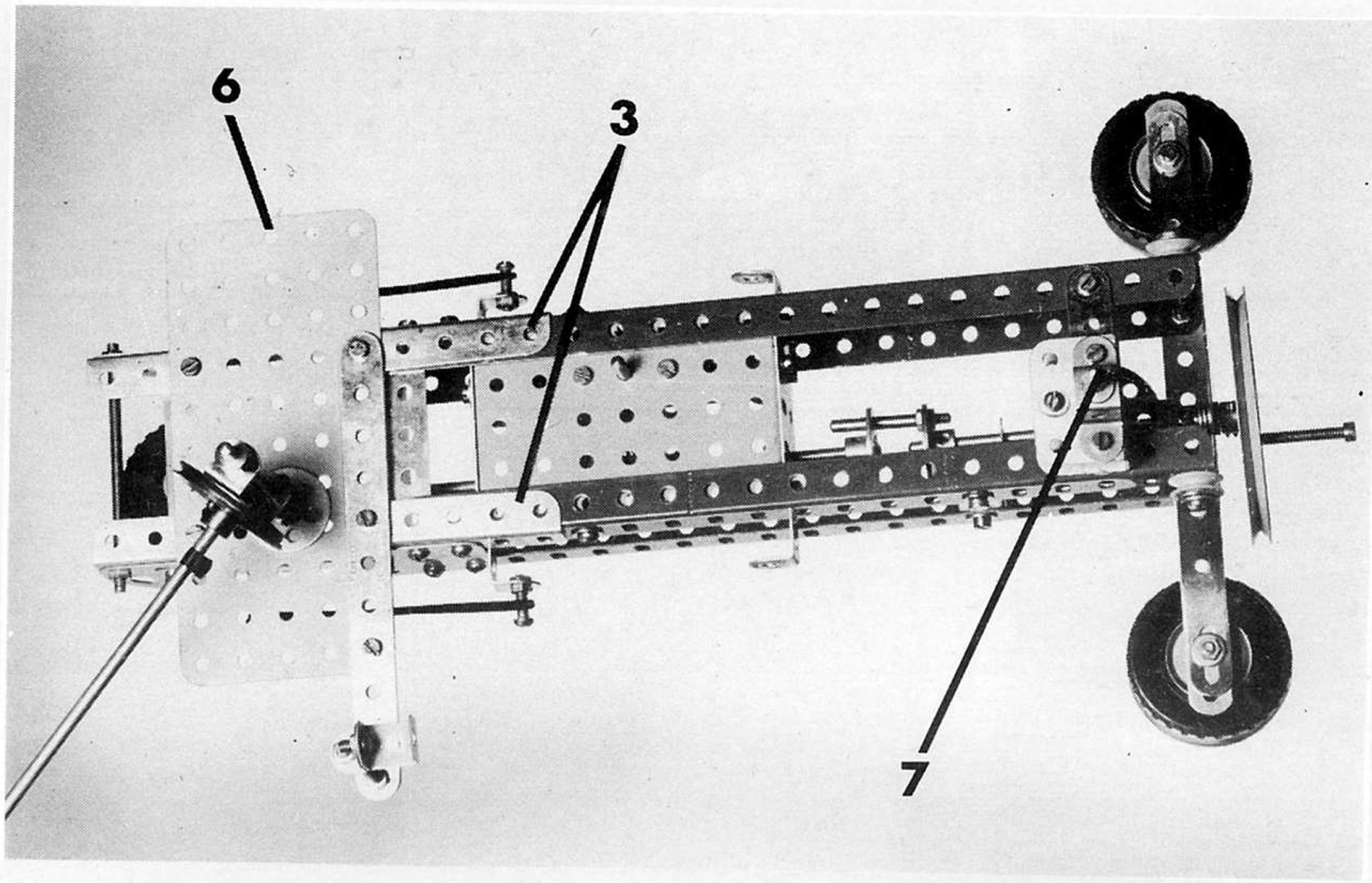
A 2½" Axle Rod 7 is journalled through a Channel Bearing, with a Double Bent Strip fixed to it's top surface, fixed to the two upper 9½" Angle Girders by two stacked 2½" Perforated Strips. A ¾" Bolt is lock-nutted to the outer centre holes of the Channel Bearing, to increase rigidity. The 2½" Rod 7 carries two Washers and a Contrate Gear below the 2½" Strips, a Washer, a 3" Pulley, (boss upward), and a 1½" Pulley, (boss down) above the Double Bent Strip. A 1" Corner Bracket 8 is bolted to a 1½" Angle Girder 9, fixed to the slotted holes in two of the 9½" Angle Girders.

The free hole of the 1" Corner Bracket, and the end 2½" x 1½" Flanged Plate, support a 4" Axle Rod which carries a 1" Bush Wheel at it's inside end, a ½" Pinion just inside the Flanged-Plate, spaced by three Washers, a 3" Pulley on the outside, separated by one Washer and holding a 1⅛" lock-nutted Bolt serving as a handle.

The ½" Pinion meshes with the Contrate Wheel, and a Long Threaded Pin is lock-nutted to the face of the 1" Bush Wheel. The shank of this Threaded Pin should slide freely through a hole in the table assembly 1" Bush Wheel, enabling the assembly to move to & fro whilst still being driven. The table itself can now be fitted, for photographic purposes this was represented by a circle of thick card, but ¼" plywood is far better if the model is to be in use for some time.

Whatever material you choose, the table is secured to a Bush Wheel, fixed to the 2½" table assembly vertical Axle Rod. A 2½" x ½" Double Angle Strip, (lugs up), is fixed between the upper 9½" Angle Girders at point 9a. Two Bolts 10 are fitted in diametrically opposite holes of the 57t Gear, and these engage the edge of this 2½" x ½" Double Angle Strip, providing a to & fro movement of the table.

A pair of rubber bands are looped around ¾" Bolts lock-nutted to the 3" Narrow Strips, and around ½" Bolts lock-nutted to the lugs of one of the table assembly 3½" x ½" Double Angle Strips. Make certain that the assembly slides freely against the Bolts in the 57t Gear under the tension of the rubber bands.



VIEW from above with designing table removed and pen arm swung away.

PEN CARRYING ARM

This is an 11½" Axle Rod held in the boss of a 1½" Pulley, bolted to a 1½" x ½" Double Angle Strip 11, swivelling between Collars on a 3" Axle Rod. This Rod is secured to the 5½" x 2½" Flat Plate 6 via a 1" Bush Wheel. The 11½" Rod must line up with the upper surface of the 3" Pulley cam-wheel but must not drag on it.

It carries a sliding pen-holder consisting of a 1½" x ½" Double Angle Strip 12 to which a 1" Bush Wheel is fixed by a ½" Reversed Angle Bracket, the Bracket being held by an upwards projecting ½" Bolt. A ¾" Bolt held in the tapped transverse bore of the 1" Bush Wheel is used for convenient securing of a ball-point pen refill. ½" Bolts are arranged as required on the 3" Pulley cam-wheel, and the 11½" Rod maintains contact with these by the tension of a 6" Driving Band looped around the Rod and the 2" Screwed Rod serving as support for the pen holder.

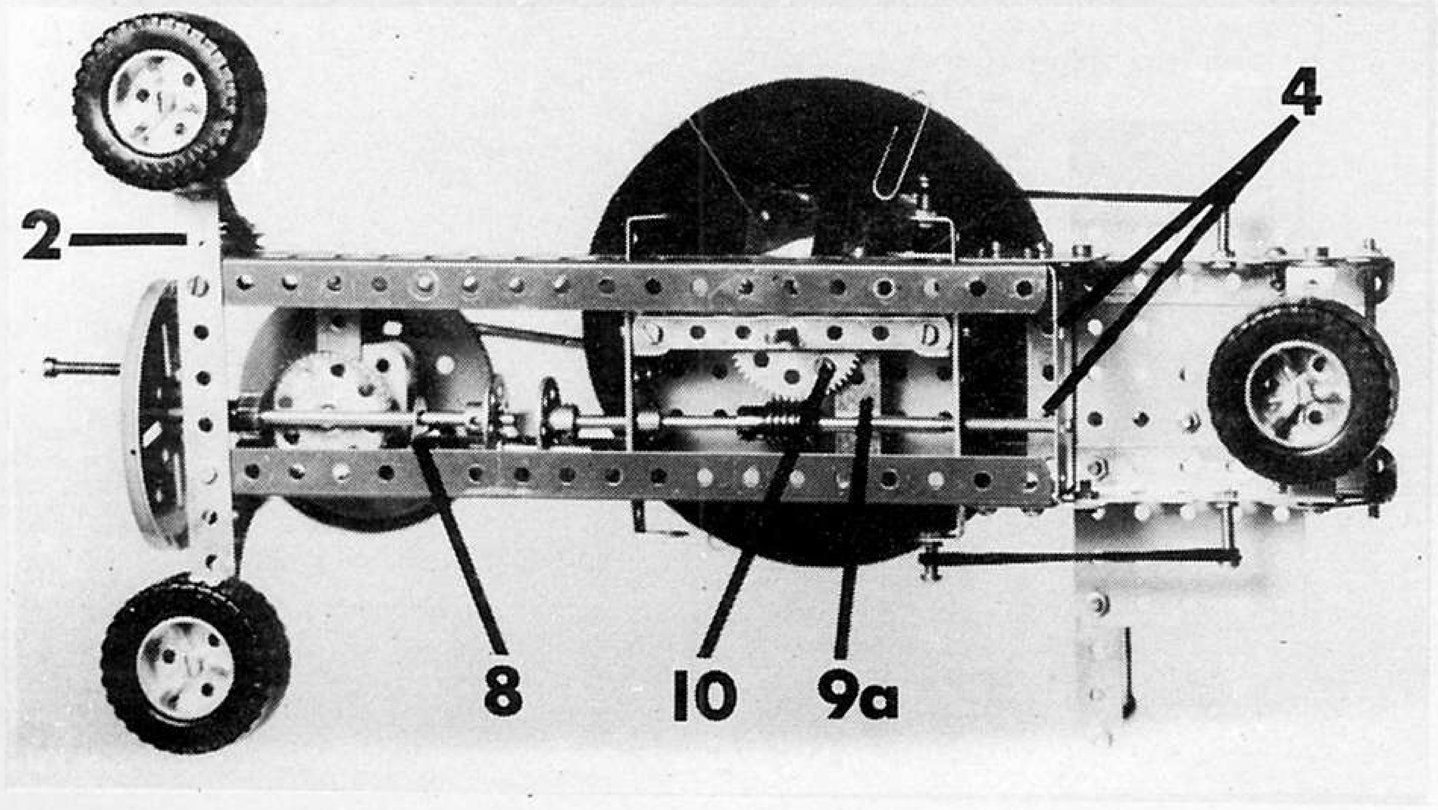
The 1½" Pulley at the top of Rod 7 is made into an eccentric of considerably variable range by bolting a Fishplate to a hole in it's face, using two nuts. The angle of the Fishplate can be varied by loosening the top nut, adjusting the Fishplate, then re-tightening. The outer slotted hole of the Fishplate holds a ½" Bolt. A 5½" Perforated Strip connects this ½" Bolt shank, and the upwards projecting ½" Bolt on the pen-holder, by it's end holes.

OPERATION

Light oil should be applied sparingly to all moving parts including the sliding table drive and particularly the Bolts of the cam-wheel 3" Pulley. Light card, (unlined filing card stock is suitable), is cut into circles and held on the table by suitable clips etc. A weight must be used to increase the pressure of the pen on the card, for this the remaining Road Wheel Centre will be found suitable if augmented by two Multi-Purpose Gearwheels.

Many options for varying the designs are available, such as altering the position of the 1" Bush Wheel bolted to the Flat Plate 6, varying the number and layout of the ½" Bolts secured to the cam-wheel 3" Pulley etc. Greater versatility can be obtained by lengthening the 5½" Perforated Strip connecting arm by bolting a 2" Perforated Strip to one end, the centre hole of this giving additional ½ spacing possibilities. Further experiments are possible with 7½", plus 7½" plus 2" Perforated Strip combinations.

UNDERSIDE view of completed model. Meccano parts of varying colours have been used to assist in parts differentiation.



PARTS REQUIRED:

2 of No.	1B	4 of No.	48A
3 of No.	2	2 of No.	48B
2 of No.	5	1 of No.	51
2 of No.	6	1 of No.	53
4 of No.	8A	3 of No.	59
2 of No.	9	1 of No.	70
1 of No.	9F	2 of No.	74
1 of No.	10	1 of No.	80C
1 of No.	11	1 of No.	81
1 of No.	12	2 of No.	103F
2 of No.	12B	3 of No.	111
1 of No.	13	7 of No.	111A
2 of No.	15B	4 of No.	11D
2 of No.	16A	1 of No.	115A
1 of No.	16B	1 of No.	125
1 of No.	18A	2 of No.	126A
2 of No.	19B	1 of No.	133A
2 of No.	21	1 of No.	160
2 of No.	22	1 of No.	186A
4 of No.	23	1 of No.	213
1 of No.	24B	2 of No.	215
1 of No.	26	2 of No.	235A
1 of.No.	27A	1 of No.	235B
2 of No.	27F	3 of No.	187C
1 of No.	28	(all parts)	
1 of No.	32	1 of No.	187E
1 of No.	35		
64 of No.	37B		
94 of No.	37C		
40 of No.	38	Circle of ¼" plywood	
1 of No.	38D	Four small woodscrews	
2 of No.	45	Two rubber bands	
2 of No.	48	Card stock	

DINKY TOYS NEWS

A REVIEW OF THE DINKY TOYS INTRODUCED SINCE THOSE FEATURED IN THE OCTOBER M.M.

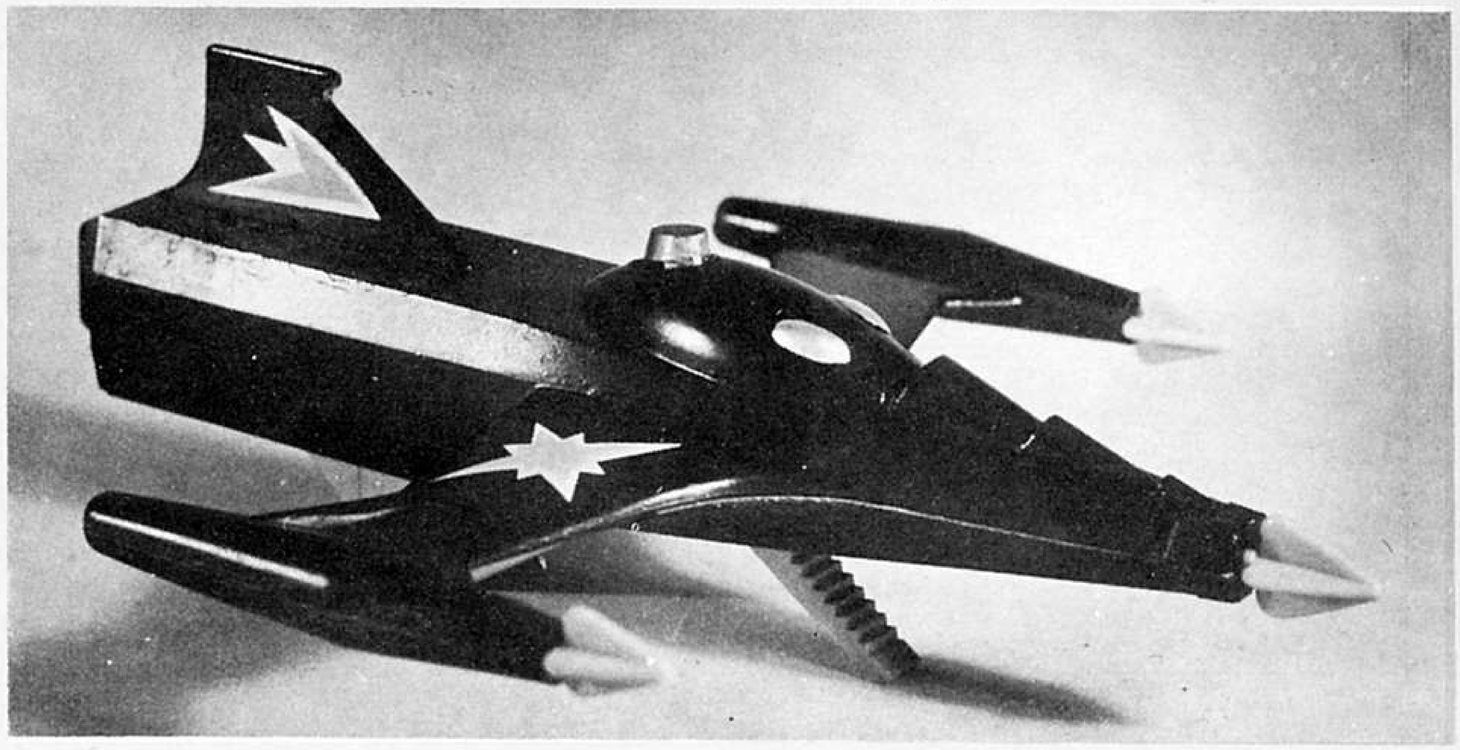
No 367 SPACE BATTLE CRUISER

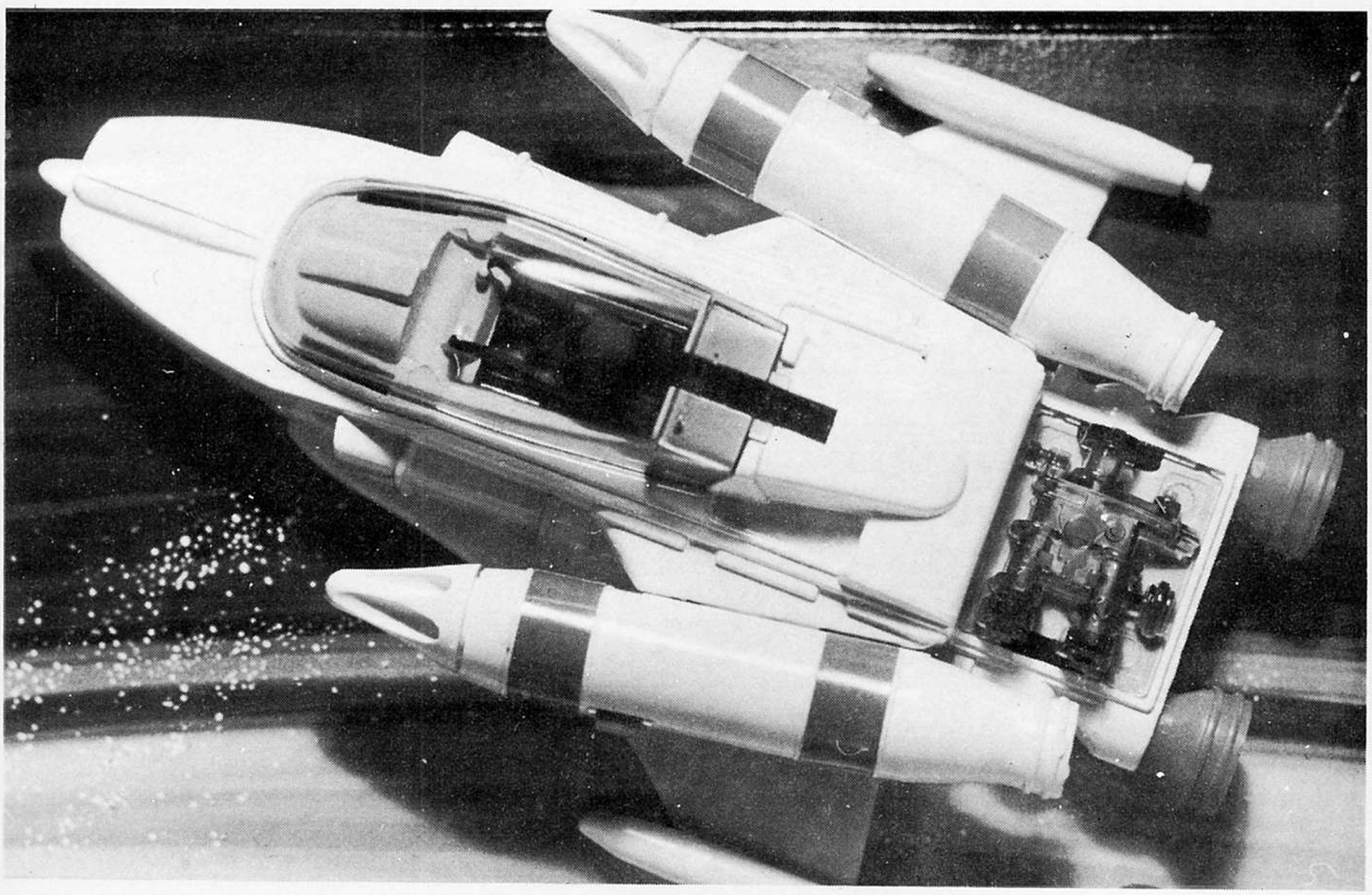
As a duelling companion, the appearance of the Space Battle Cruiser in March 79—was a stark contrast. In a white finish, with a red and black trim, this model carries two large firing missiles. The Spacecraft has an opening canopy (blue perspex finish) and space commander. Overall length is 187 mm. No doubt 1979 will see further introductions, as the Dinky Spacefleet goes boldly where no other diecast toy dares!

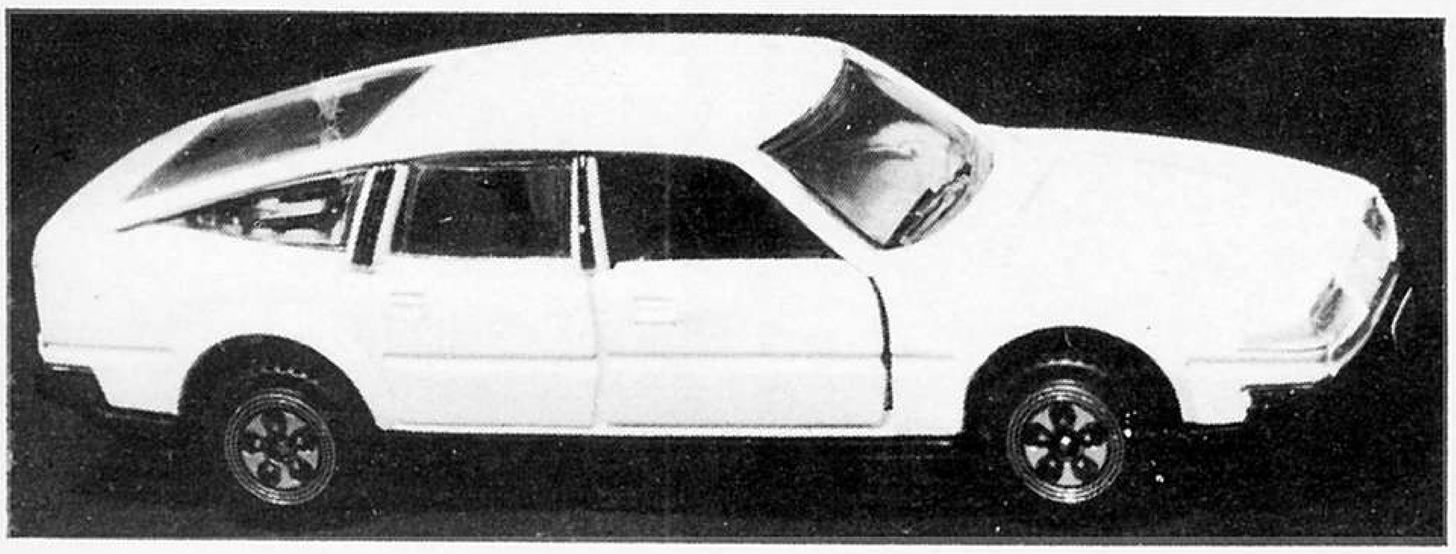
TRIDENT STAR FIGHTER No 362

WITH the popularity of the space theme in films and toys, and with Dinky's strong space line-up e.g. Thunderbird 2, and Eagles—December 78 saw the introduction of the latest addition to Dinky's Space Fleet—The Trident Starfighter.

An aggressive looking model, with a jet black finish, it carries 3 orange missiles—one of which fires. There is also a retractable ladder situated under the belly of the spacecraft. Overall length is 160 mm.







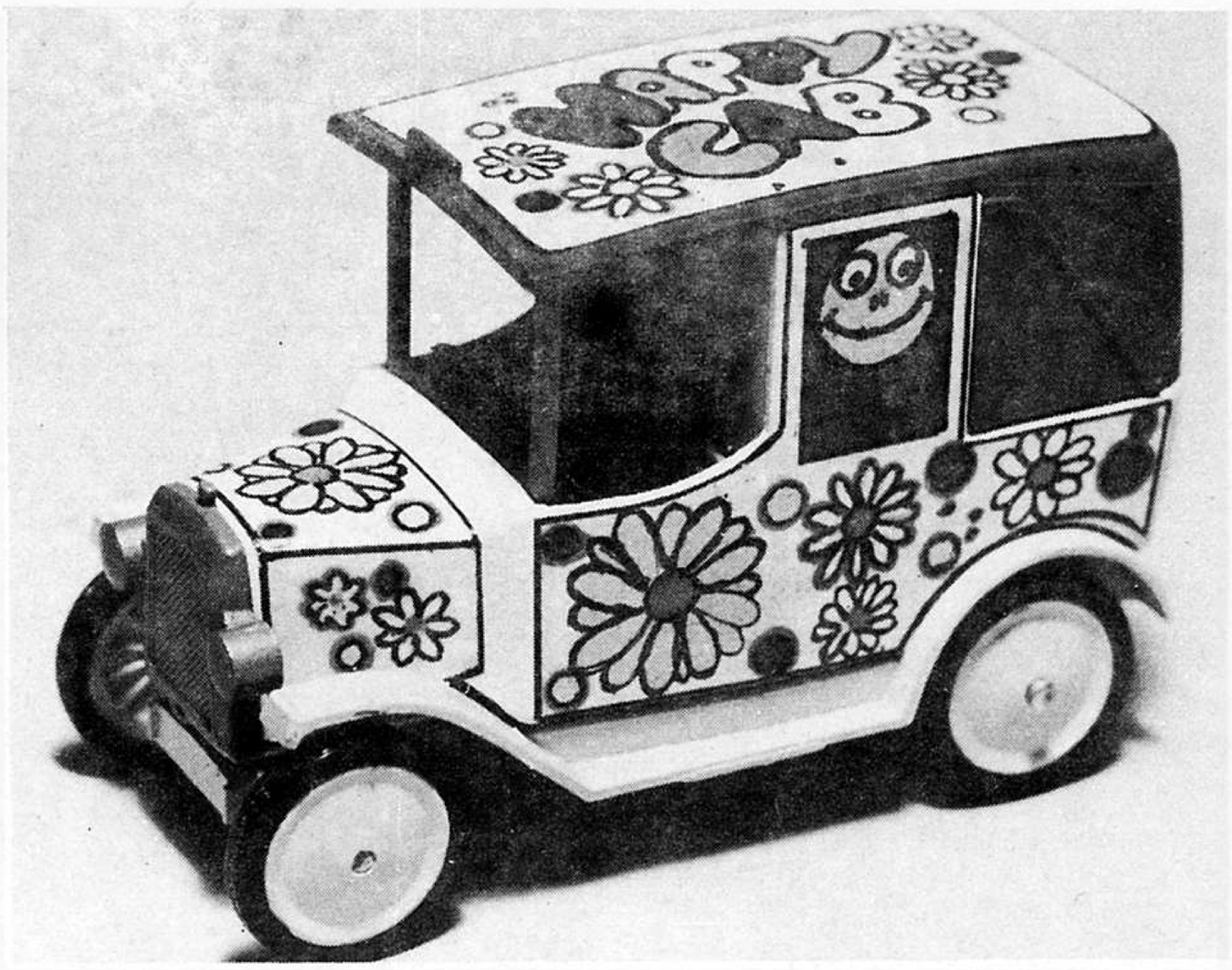
No 180 ROVER 3500

Another addition to the British Leyland range of Dinky's—the Rover 3500 offers a smart and detailed body casting complete with two opening doors and opening tailgate. Carrying an appropriate Registration plate of DKY 180—the model has an overall white finish with neat, glazed headlamps, orange side lights and full moulded interior fittings. Overall length is 136 mm and scale 1/37th.

No 120 HAPPY CAB

In March 79—the Happy Cab was introduced. An unusually colourful model, carrying flower-motif details, the Happy Cab logo and a 'Smiley' type face—the irridescent brass finish wheels and trim are an appealing contrast with the red, blue and yellow decals.

There is also a detachable blue hood. Length is 86m. The pack features a cut-out 'Be Happy!' badge. This line has undoubted Kiddie appeal.



DINKY TOY No 222 HESKETH 308E RACING CAR

With motor racing ever high in popularity—and Formula 1 motor racing more popular than ever—this new Dinky Toy will appeal to fans of all ages. Based on a Modern Formula 1 Racing Car, it features an aerofoil, wide profile racing wheels, a moulded engine representation with a realistic looking driver in racing kit.

With its low slung, sleek racing shape and sporting top Formula 1 Sponsors, Olympus Cameras decals, this model is every inch a winner. Length 132 mm.

CLASSIFIED ADVERTISEMENTS

W.R. (BILL) INGLIS wishes to advise all his Meccano friends that his new permanent address is 199 KILBY ROAD, NORTH KEW, 3102, VICTORIA, AUSTRALIA.

FOR SALE: 'M.M.'s bound with covers, 1929 complete; 1928 7-12 only; loose 1934 & others. Wanted, 'M.M's before 1925. SAE for details. Altnaharra, Elsdon Lane, West Hill, Ottery St. Mary, Devon.

FOR SALE: M.M.'s 1950-1955 inclusive. £7.50 carriage paid. Kittle, 60 Shipwrights Drive, Thundersley, Essex, SS7 1RA.

FOR SALE: Meccano No. 10 Set model instructions: Ellipt-O-Graph Guilloches, Meccano Pistol, Guilloche Round, St. Nicholas in Meccano, Coloured Light Play, Egg Garland Designer, 3-hand Synchronous Clock, Carpet Design Maker, 12-Speed Gearbox, Moving Room Decoration. With big technical photos, instructions in English. Pre-war Marklin, STABIL etc. literature. In exchange for current Meccano parts also. Andreas Konkoly 1137. BUDAPEST. Katona J.U. 28. III. 17.

MECCANO MAGAZINE SUBSCRIPTION RATES

SURFACE MAIL	
U.K. and World	£4.00
AIR MAIL	
Middle Eastern Countries	£6.50
Canada, South Africa, U.S.A., South America	£7.00
Australia, New Zealand	£7.50

Rates to other Countries supplied upon request

N.B. OVERSEAS READERS SHOULD HAVE THEIR SUBSCRIPTION REMITTANCES CONVERTED TO STERLING BEFORE SENDING THEM.

Rates charged in this section are as follows: Private, 4p per word; 5p per word. Please send advertisements, with remittance, to Meccano Magazine, Classified Ads, P.O. Box No. 4, Binns Road, Liverpool L13 1DA.

WATFORD

MAIL ORDER SERVICE

MR G.A. Pollock wishes to thank readers of the Meccano Magazine for the encouraging response which they have shown towards the introduction of this mail order service.

Appreciation is also due to a number of our customers for their patience in view of the availability of certain parts.

Perhaps we could mention to enthusiasts that we specialise in the supply of Meccano and that in additon to competitive prices, we offer a return-of-post service.

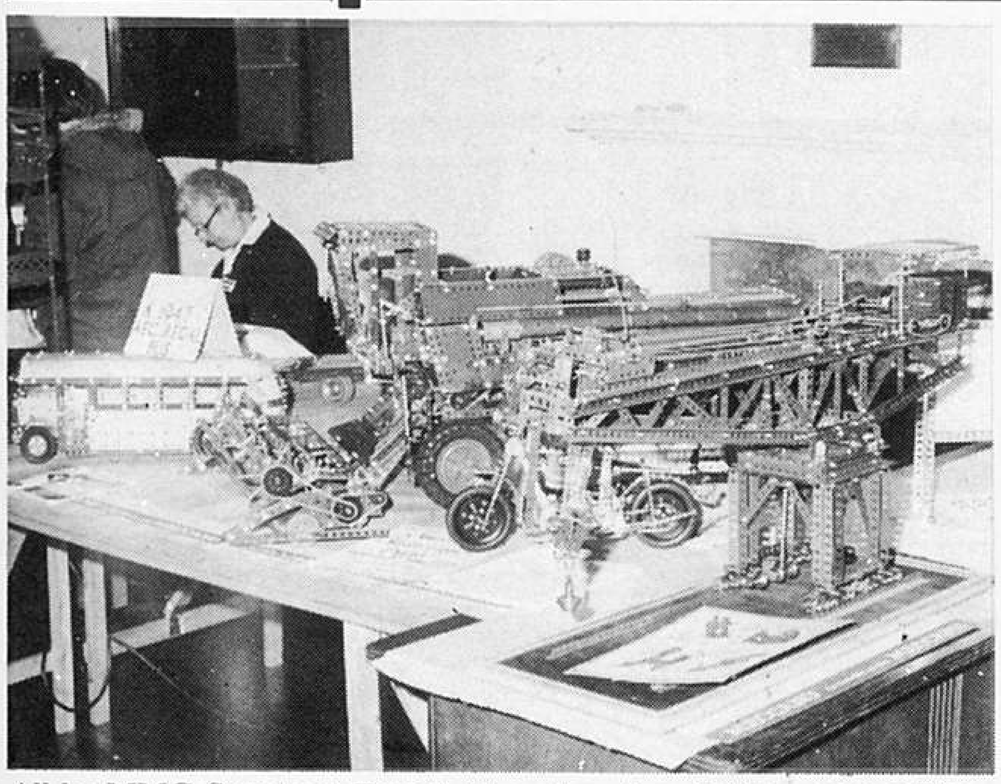
Enthusiasts who would like to receive up-to-date lists of items available are invited to write or telephone for full details.

P.O. Box 118
Watford WD1 5AZ

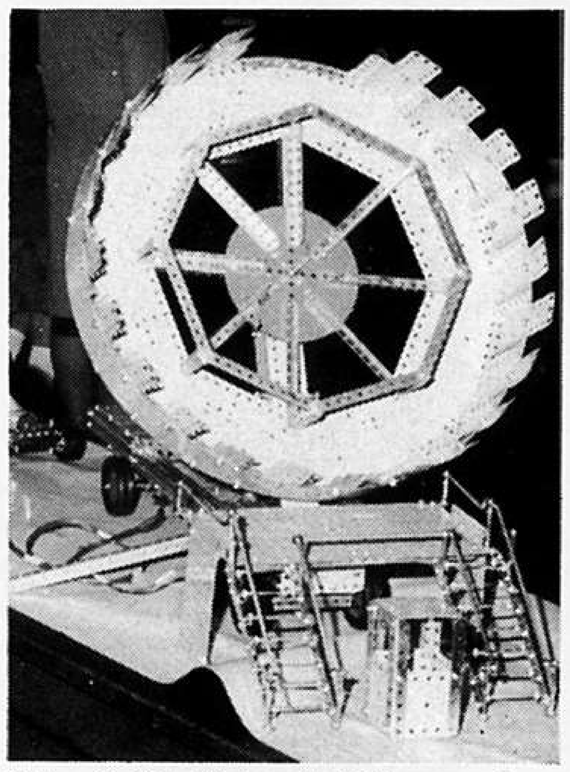
Telephone: 01-428 7443

Stratford Supermodels

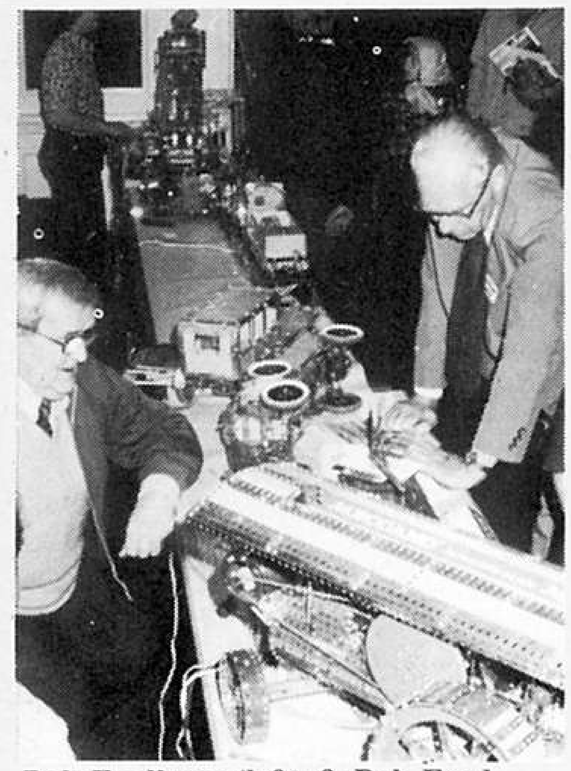
A PHOTO report of the Midlands Meccano Guild's Meccano model display held at the Stratford-upon-Avon Town Hall on the 28th April 1979, proceeds of which went to the local St. John Ambulance Brigade.



All by MMG Secretary Ernest Chandler; from left to right; a Bus, a Combine Harvester, Motor Cycle and Blocksetting Crane.

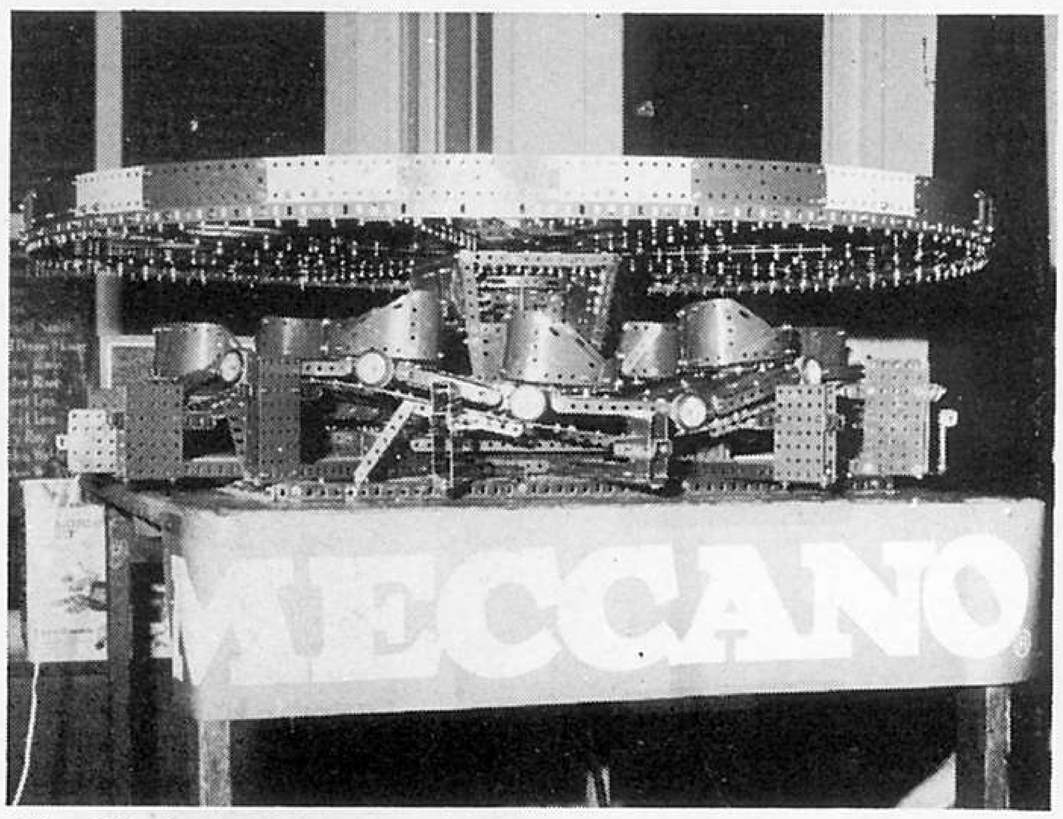


Mike Cuff's Meteorite Fairground Ride with drum at its highest elevation



Bob Faulkner (left) & Bob Ford admire Charles Catt's Showman's Road Loco.

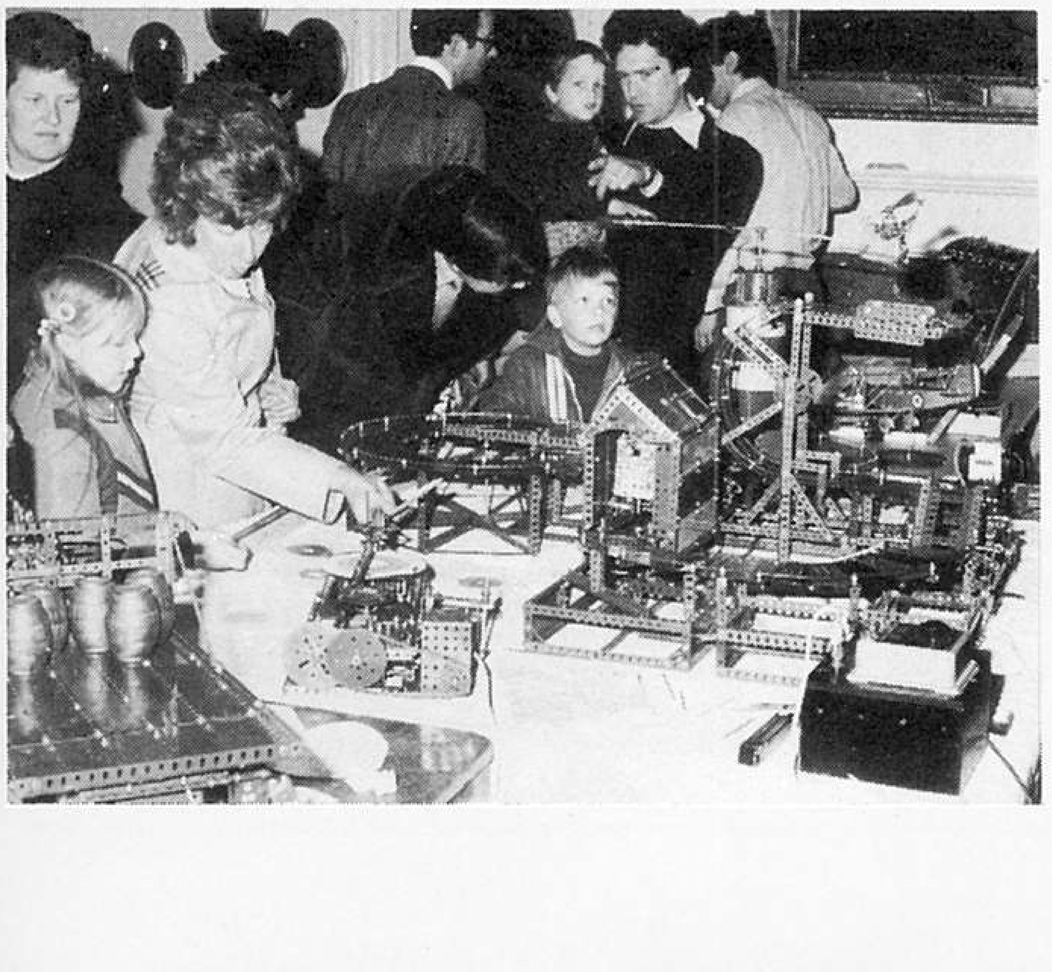
James Gilbert stacks a pile of blocks with his astounding 'Bionic Arm'.

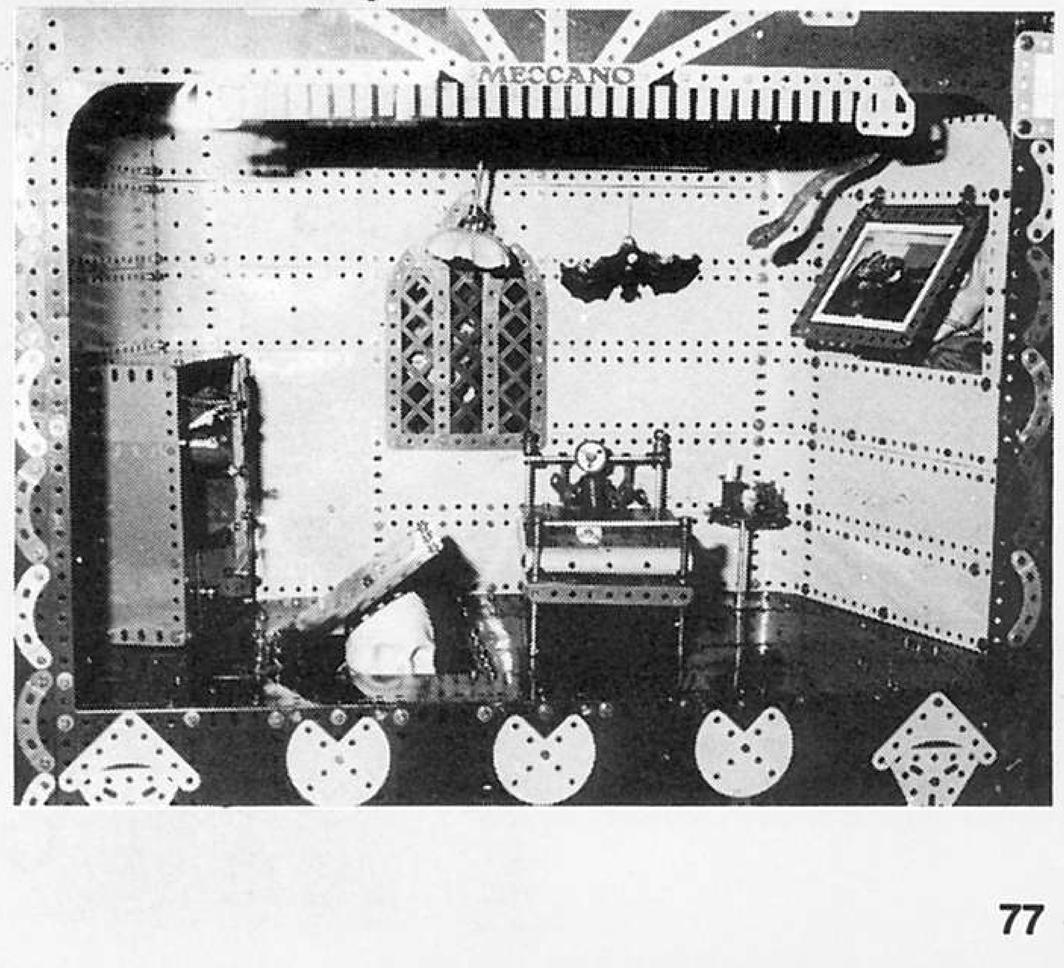


Clive Hine's latest Fairground Ride,

Esmond Roden's spooky house showing a poor Meccanoman visited by (from the left), a crocodile in the cupboard, a skull under the trapdoor, a face behind the window, a bat suspended from the ceiling, a snake and another face behind the picture.

Ken Wright's 'Tricky Track', Meccanograph & Steam Lorry.





.. SPECIALIST DIRECTORY ..

ALL DEALERS APPEARING IN THIS SECTION SPECIALIZE IN SUPPLYING MECCANO EQUIPMENT

BARTON 0652-32470

PECKS OF BARTON
George St, Barton on Humber

MECCANO Sets,
Accessories and Spare Parts

LONDON Tel 01-959-2877

H. A. BLUNT & SONS LTD,
133 The Broadway
Mill Hill,
LONDON NW7 4RN

CANADA

R. S. MODELS
Box 30178, Postal Stn.B
Calgary, Alberta, T2M 4P1
Complete range of Sets,
Accessories & Parts

HENLEY (049 12) 2436

M. W. MODELS
'EVERYTHING MECCANO'
165 Reading Road
HENLEY-ON-THAMES
Oxon RG9 1DP
Retail and world wide mail order

U.S.A.

MECCANO IN THE U.S.A.
Meccano sets and parts
Write for lists or Visit our shop

KENT SNYDER/GOODTHINGS
437 Cambridge Ave.
Palo Alto, Calif. 94306
(415) 328-8155

NEW ZEALAND

BUNKERS LTD,
PO BOX 58
HASTINGS
Mail orders from all countries welcomed

LIVERPOOL (051-709) 7562

Lucas's HOBBIES Ltd.
7–9 Tarleton St.

FULL RANGE OF MECCANO
& SPARE PARTS AVAILABLE

Retail and world wide mail order

WATFORD Tel 01-428 7443

WATFORD MAIL ORDER SERVICE
P.O. Box 118
Watford WD1 5AZ

World wide mail order for sets
accessories and spare parts

WEST AUSTRALIA

JACK STANBRIDGE'S
'Hobbyshop'
19 Guildford Road (at subway),
Mount Lawley, (Perth),
Western Australia.
Full range of MECCANO Sets.
Spare Parts available.

Bagnall
John W Bagnall Ltd

THE BIG *NAME IN* MECCANO®

MECCANO SETS DISCONTINUED
Gears set £5.25 plus 35p P & P (UK only)
Mechanisms set £8.45 plus £1 P & P (UK only)
Steam Engine £11.65 plus £1 P & P (Uk only)

MECCANO SPARES
Our aim is to keep a full range of spares in stock—not an easy task! All orders dealt with by return.

MAIL ORDER
By return, mail order, payment by cheque, Barclaycard and Access (just quote your number) H.P. Arranged. Orders over £10, Post & Packing free, UK only. S.A.E. for details.

OVERSEAS
Overseas orders a speciality

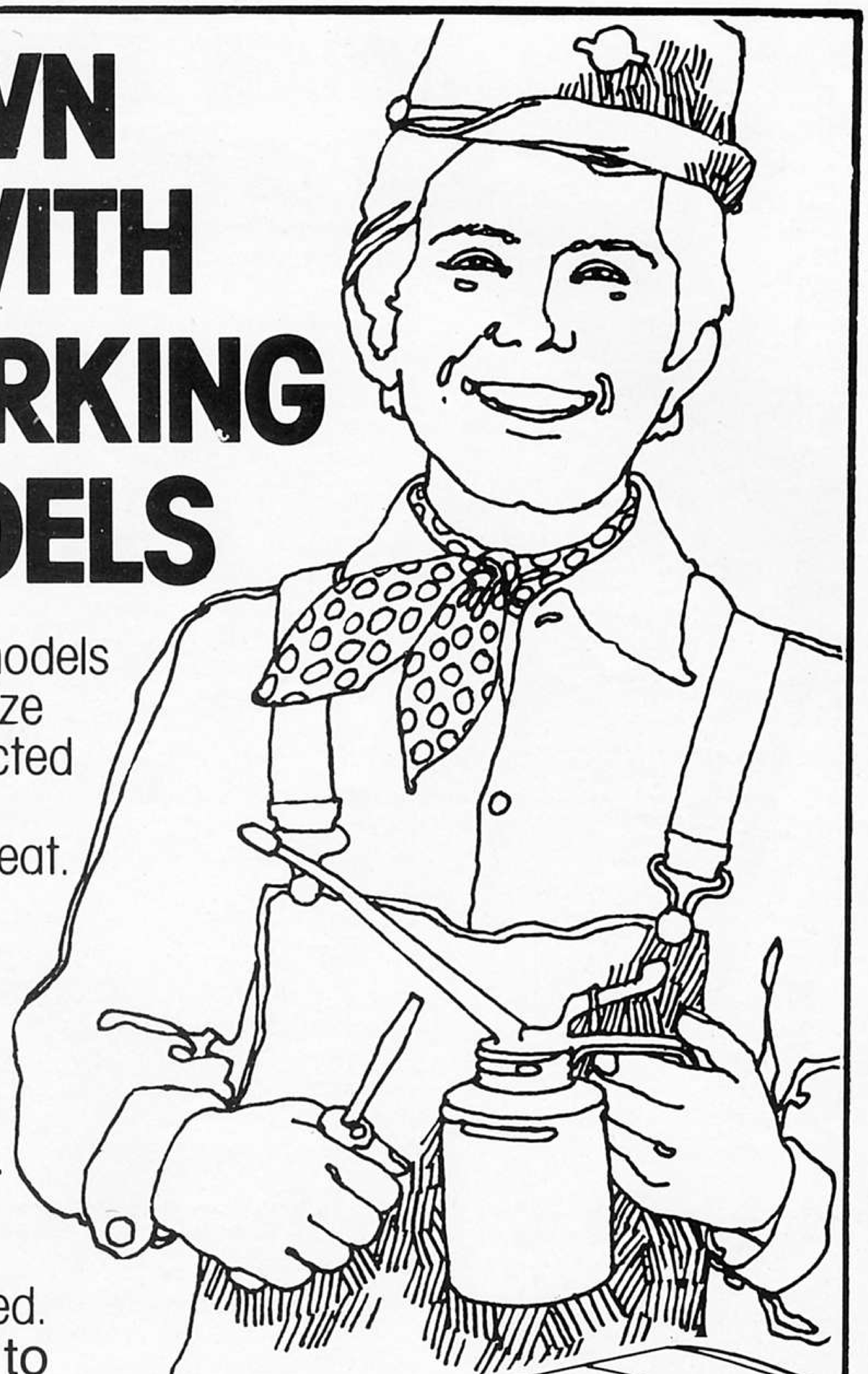
ALL MAIL ORDER TO STAFFORD PLEASE

18, Salter Street,
STAFFORD,
Tel: Stafford 3420
Closed all day Wednesday
Public car park at rear of shop.

John W Bagnall Ltd

44, Piccadilly,
Hanley,
STOKE-ON-TRENT.
Tel: Stoke-on-Trent 263574
Closed all day Thursday.

BE YOUR OWN ENGINEER WITH Mamod WORKING STEAM MODELS



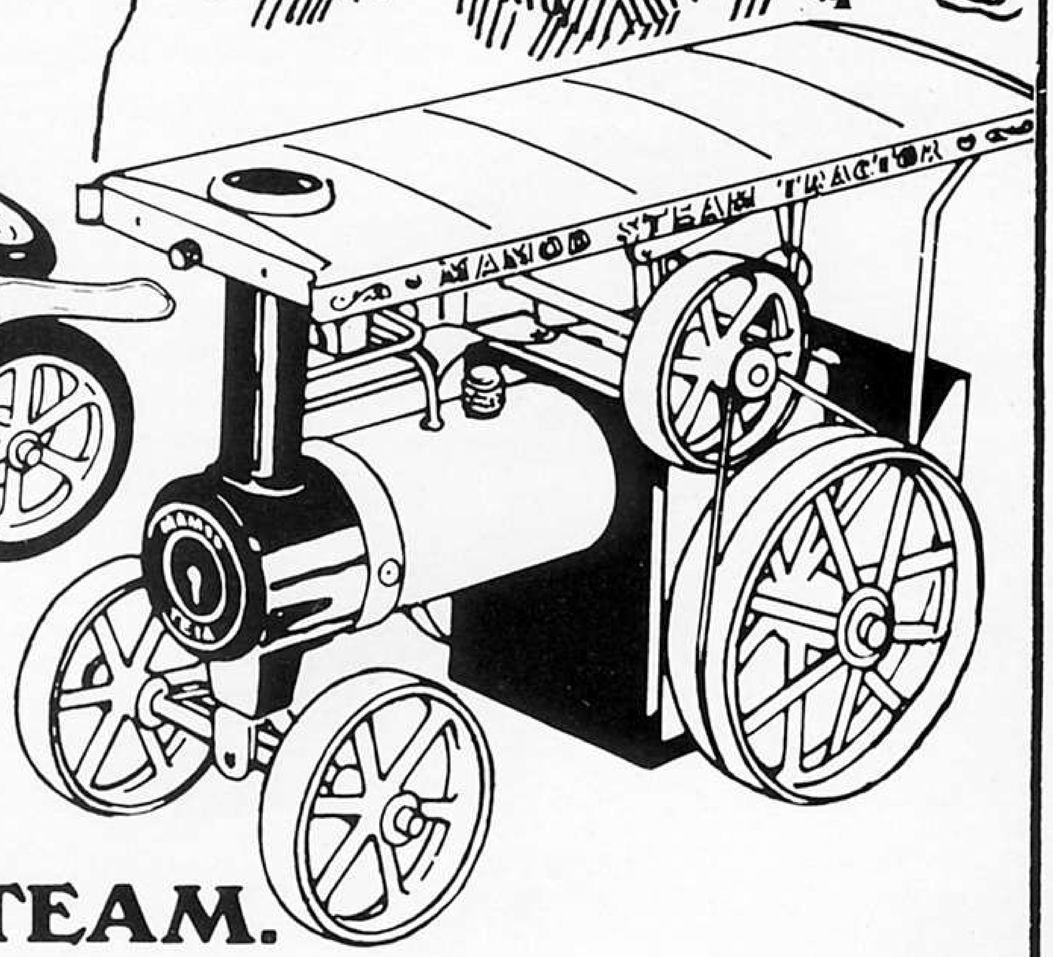
Magnificent Mamod steam models really work. And just like the full size originals, they're sturdily constructed with precision metal parts.

So put yourself in the driving seat. Boiler filled, engine oiled, fuel ignited, pressure up, into gear – and you're away.

The full range extends from stationary engines and machine tools to a classic Traction Engine. Plus the sensational new Steam Roadster.

And for Dad, so modestly priced.

From as little as £7.30 up to £31.90



Available at all leading toy and model stockists now.

EVER FASCINATING STEAM.

Mamod

Malins (Mamod) Limited,
Brierley Hill, West Midlands, DY5 2JZ.

EVERYTHING MECCANO®
RETAIL and WORLD WIDE MAIL ORDER

FOR REGULAR MECCANO READING – USE OUR 'MAGAZINE ACCOUNT' SERVICE

MECCANO MAGAZINE (Quarterly) £1.00

MIDLANDS MECCANO GUILD GAZETTE 40p

MODEL MECHANICS (Monthly) – the new M.A.P. Magazine with Bert Love's regular Meccano feature 45p

For your regular Meccano reading, simply send us a few pounds to open a 'Magazine Account' with us. State which magazines and which issues you wish to start with, and we will notify you each month how your account stands. Nett postage only is charged. *FOR SINGLE COPIES PLEASE ADD 20p FOR POST & PACKING.*

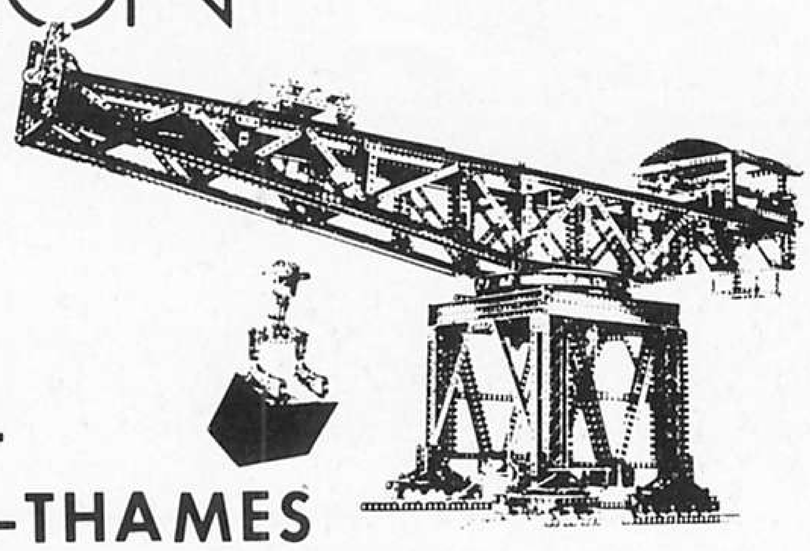
We are the Meccano specialists & stock:-

* 'TODAY'S MECCANO' SETS, EXTENSION PACKS & MOTORS
* OBSOLETE CONVERSION SETS
* STANDARD SPARE PARTS IN NEW & OLD FINISHES
* MULTIKIT & CLOCK PARTS
* ELECTRICAL & ELECTRONIC PARTS
* REPLICA PARTS
* MODEL BUILDING LITERATURE
* MECCANO MAGAZINES – BACK NUMBERS
* PLASTIC & PRIMA MECCANO SETS & SPARE PARTS
* MOGUL STEEL VEHICLES

FOR LATEST NEWSLETTER & LISTS OF ALL ABOVE, PLEASE SEND :-
U.K. - 7p STAMPED ADDRESSED 9"x 4" ENVELOPE. OVERSEAS - THREE REPLY COUPONS.

EVERYTHING MECCANO (MW Models) *The* Meccano Specialists,
165 Reading Road, HENLEY-ON-THAMES, Oxon, RG9 1DP, ENGLAND.
Telephone: Henley-on-Thames (STD code 049 12) 2436)

EIGHTH ANNUAL
MECCANO® EXHIBITION



31st AUGUST & 1st SEPTEMBER 1979

TOWN HALL
HENLEY-ON-THAMES

COMPETITIONS open to all – age taken into account.

'DISPLAY' — Best suggestion for a new Display Model : Eye-catching, robust, capable of economical mass-production. Using, in the main, standard Meccano Parts, but Mains Motor is allowed.

'NONUTZORBOLTZ' — Best Model of any subject, using Meccano Parts of any type EXCEPT NUTS OR BOLTS !

JUNIOR COMPETITION open to age 12 or under - age taken into account.

'MECCANIMAL' — Best Animal Model (living, prehistoric, imaginary, including birds, fishes etc.) Standard (metal) Meccano Parts, and/or Plastic & Prima Meccano Parts may be used.

SPONSORED BY 'EVERYTHING MECCANO' (MW MODELS) 165 READING ROAD, HENLEY, OXON